We don't know what we don't know

and

We don't know what we do know that's wrong

University of Alberta

Information and Communication: Tools of Agency and Connection

by

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Abstract

This study examined the role of community public-access computers for immigrants through a qualitative case study of reasons for their access and usage among Spanish-speaking newcomers in the Yakima Valley of Washington State. The locale served as a microcosm for understanding community vitality in a changing world—the retention of core community traditions and knowledge while creatively adapting to changes in the broader dynamic society. The objectives were to gain an understanding of the perceived usefulness of Internet access and computer skills for low-income rural households, and gain an understanding of the interplay of access to outside information via ICTs and social network information flows in contributing to the economic and social agency of individuals and to relate this in turn to leadership and adaptive change.

Structured interview data were collected from eleven individuals associated with community based public access sites where adults working in agriculture could access computers and the Internet as well as computer classes or/and assistance in Spanish. All interviewees spoke Spanish, and a majority were of the Latino community.

The rural poor, particularly those with limited English language capability, are disadvantaged in terms of access to information and institutional services. Twenty percent of current immigrants to the US come from Mexico. In acculturating and becoming established, those who work in agriculture have a particularly difficult path to move beyond low-wage jobs and household poverty. Community public access sites are being purposefully used by Spanish-speaking newcomers to become informed and enhance spoken English and computer proficiency. Mastery of e-mail provided a personal sense of having crossed the digital divide. The primary source of information,

however, was the social network. My analysis suggests that rural initiatives intended to reduce the digital divide for Latinos would support (a) home-based learning, (b) intergenerational and peer learning, and (c) free community-based instruction and volunteer tutoring at diverse sites.

Public-access sites also contributed to newcomer self-confidence. My analysis, using Lin's social capital model and Schein's construct of organizational culture, suggests this is a key contribution in the acculturation process and in the development of emergent or grassroots leadership potential.

Dedication

This dissertation is dedicated first to my mother, Shirley Allan who never doubted my capability or persistence but, along with my husband, always prompted me to ask myself: Why would I choose to do this?

My husband framed the question as: What is your goal and how does this contribute?

The dissertation is also dedicated to my extended family including my father, Henry Allan, my in-laws, Dick and Susan Rempel, and my siblings and nieces and nephews. It is to my father-in-law that I owe my love of Mexico and much of the appreciation I have of its rich history.

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While it is not possible for me to express my appreciation to everyone who contributed to the completion of this study, acknowledgement and thanks are also extended to my academic colleagues, both faculty and fellow graduate students many of whom provided advice and support at various points over the course of the study. In the last phase of the study the contributions of colleagues Christine Mhina and Ray Benton-Evans were particularly important to overcoming the final hurdle.

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CHAPTER 1:

INTRODUCTION

In this study I examined newcomers in the Yakima Valley in Washington State as a microcosm for understanding community vitality in a changing world—the retention of core community traditions and knowledge while creatively adapting to changes in a broader dynamic society. The concept of *community tradition* is defined as rural communitarianism in this study and is consistent with social capital concepts. Change centers on the relationships between peoples and generations in the Valley. These concepts represent the foundation and the flexibility of the Latino social network, which is rather like a well-anchored willow tree that bends in response to the changing winds. Like this tree, social networks continue to be a deeply anchored and integral feature of rural community life. I focused on the change dynamic and on the role that information communication technologies (ICTs) might play in the processes of affirming tradition and informing change within social networks among rural Spanish-speaking adults.

The Yakima Valley history reflects the importance of immigration and migrant farm workers to the development of US agricultural communities over the last century. Drawn by the economic opportunity arising from the success of a preceding product cycle, each wave has contributed to the ability of the Valley to successfully engage the next product cycle and establishing the Valley as the fruit basket of the nation. Latino farm families and workers have long been part of this legacy. Latino families who have settled over the years comprise part of the workforce needed year round for packing-plant operation and orchard maintenance. Another core workforce, farm managers and labor contractors, includes former workers who have retained their Spanish-language capability. The importance of this capability to the wider community stems from the fact that most newcomers willing to work in agriculture speak Spanish. They are continuing a Mexican tradition of moving ever further north that is expected "to remain, for the foreseeable future, one of the largest mass movements of workers and families in the modern age" (US-Mexico Binational Council, 2004, p. 1). This latest wave of workers, however, is being courted by both agricultural communities across the country and communities with manufacturing and processing plants in nontraditional areas. Thus, without the established bilingual Spanish community, the high-investment operations of Valley farmers and of the associated agribusinesses would be at risk.

The importance of the established Latino community to the Spanish-speaking migrant families and workers is multidimensional. In addition to providing role models for success, the Latino community has been instrumental in setting up, maintaining, and promoting community services, support groups, and information services. The community voice over the past 25 years has been Radio Cadena (KDNA)—the only Spanish-language public radio station in the US. The community also acts as a local social safety net. It is a safety net that complements and extends the family-based social networks of newcomers and that bridges the transnational experience. It is a network that operates within the Latino cultural traditions of giving back to the community, of community engagement, and of commitment.

The purpose of this study was to gain an understanding of the perceived usefulness of Internet access for low-income rural households by examining the reasons for Internet and computer use among rural Spanish-speakers in an agricultural area. I sought to identify a policy perspective on the digital divide other than denial of access or technology as the 'silver bullet.' I sought to gain an appreciation of community vitality and information access as these might relate to alteration of the cycle of poverty that many migrant farm families experience. Thus, in examining the role that ICTs might play and assessing the potential of benefit to Spanish speakers in agriculture, I looked for an area that seemed to have dynamically balanced heritage and opportunity, tradition, and adaptation. I looked for an area where the use of ICTs by Spanish speakers was evident. In the Yakima Valley I found communities that continue to reflect the courage, strong values, tenacity, and resilience that characterized their founding residents. I found communities proud of their diverse pioneer roots and of value-added agricultural production as key to the current vitality. I found communities where the use of various ICTs could be viewed over time in the context of adaptation to changing markets, opportunities, traditions, and media.

The Setting

In undertaking this study, I was drawn to the Yakima Valley in Washington State. I had discovered the Valley quite by accident a year earlier. Local agriculture was evident in the orchards, wineries, and local cheese varieties found in the grocery store. I heard Spanish in conversations and on local radio, and Mexican names were evident on local businesses and professional offices. Moreover, I experienced the quiet hospitality that the Valley offers visitors. I felt at home with this hospitality and the equally quiet confidence that was evident among Valley residents. My sense of the community resonated with my values. Thus when a review of the county profile confirmed my impressions, I returned to carry out this study.

The Yakima Valley is situated in south-central Washington State. The Cascade Mountains to the west and the Columbia River to the south channel a natural transportation flow that resulted in the Valley's being bypassed in the early westward expansion.

> Lewis and Clark on their historic explorations came within fifty miles of the present Sunnyside as they prowled the mouth of the Yakima River in 1805. David Thompson, as he paddled down the Columbia River, was on three sides of the present Sunnyside, about fifty miles distant during the year 1811. (Sheller, 1952, pp. 3-4)

Even today the major interstate routes bypass the Valley. Doerper (2004) described the dramatic approaches to the Yakima Valley:

> If you drive in from the west, you arrive through the Cascade Mountains and Chinook Pass (which crosses a flank of Mount Rainier) and the Naches River Valley. Coming south from Ellensburg, you drive through the Yakima River Canyon, a spectacular gorge cut deeply into steep basalt cliffs. Here, white water roiling in deep chasms alternates with pastoral stretches where the river gently purls beneath grassy bluffs decked with wildflowers in spring; hawks and eagles soar overhead, meadowlarks sing in meadows, and you may hear the splash of a beaver in a riverside thicket.
>
> But approaching from the east on I-82 is almost as scenic. The freeway winds over basalt ridges with views of the snow-capped Cascades, Mount Rainier towering to the west and Mount Adams to the south. Spring wildflowers are thick in these parts, and you might spy a coyote skulking in the roadside underbrush.
>
> The scenery changes dramatically as you descend into the fertile Selah Valley. Tall cliffs hem in the river and highway at Selah Gap north of Yakima, at Union Gap southeast of Yakima, and again at Kiona Gap at the far eastern end of the valley. The massive layers of basalt are exposed to plain view, and most likely they look much as they did millions of years ago, after they surged out of the earth as red-hot magma and hardened into rock. (pp. 130-131)

My first impression of the Yakima Valley was of the variety of both ecosystems and local agricultural bounty. I entered the semiarid Valley after traveling from the moist, mild climate of the coast and through the forested passes of the Cascade Mountains. Arriving presents the stark contrast between the desert-like foliage and grasses adjacent to orchards, vineyards, and fields of agricultural fruits and produce framed by irrigation systems. Large agricultural processing plants stood out as I drove by some smaller communities. The plants displayed such well-known names as Del Monte and Darigold. A successful model of an owner-producer cooperative and reflective of the entrepreneurial mindset of the region, Darigold operates the largest butter churn in the US and one of the largest cheese plants (Darigold, 2006). But it was the signs pointing to farm sites on the wine tour that enticed me to leave the main highway. These family operations sell their wines from onsite tasting rooms, each of which uniquely frames the product in relation to that producer. On one site I sampled wines in a large barn decorated with family memorabilia going back over the past century. This setting framed the wine as the product of expertise built over generations. In addition to wines, other traditional farm kitchen products such as jams and herbs were available for purchase. At another site I sampled the wines along with a tour group in a small area adjoining a large patio framed by a duck pond. Tourist novelties were available for purchase, and bed and breakfast accommodation overlooked the vineyards. Each farm had its own unique combination of income-generating elements. In this initial exploration of the Valley I began to appreciate the vibrancy and diversity of the local farming operations within the wider context of the Valley economy. The hard work and diverse strategies required to sustain these family operations over generations were evident. Although the resource base of established farm operations visually contrasted with that of small holding farmers, what also became evident were the possibilities that ICTs and savvy Internet marketing might offer local farm owner-operators.

Since the 1920s agricultural production has made the Yakima Valley the 'fruit basket' of the US. Yakima County has been among the top 10 agricultural-producing counties. This level of production is highly sensitive to market demand and price. As the Yakima Valley Museum (2007b) noted, at the turn of the 20th century,

> thousands of settlers came to the Valley with dreams of prosperity in the fruit industry. New orchards sprang up all over the valley and soon the supply of apples far exceeded the demand. The new settlers had hardly started their orchards when the market collapsed, and freight cars of apples rotted on the tracks because markets could not be found. (¶ 2)

In 1958 L. H. Smith reported that county residents

> derive their livelihood mainly from farming the irrigated arid and semiarid lands of the Yakima Valley. In addition to these irrigated lands, part of the Horse Heaven plateau in the southeastern part of the county, and some other small upland areas, are dry-farmed. ... The Yakima Indian Reservation occupies approximately the southwestern half of the county. (p. 3)

Even then, however, although agriculture in the Valley was highly diversified, most individual farms were highly specialized. In addition, "crops and farm enterprises must be adjusted frequently" (pp. 3-4). Now, even with a century of success, the Valley apple production is subject to the Chinese challenge. Over the past decade "no country has thrust its way on the world scene so rapidly, so forcefully and on such a scale as has China" (Lehnert, 2005, p. 1). China now produces over 30% of the world's apple supply. Yakima Valley's response has included a focus on a combination of value-added products, off-farm supplemental income, and a growing number of Spanish-speaking small businessmen and farmers with a firm commitment to rural life and to communities in Washington State.

The Yakima Valley Museum (2007a) describes the area as a cultural quilt made up of pieces contributed by the people who, since the 1850s, have settled and brought their diverse cultural traditions. Museum displays highlight the rich diversity of these separate cultural identities while also illustrating that the families and their traditions are in keeping with the shared values of Yakima Valley residents. The importance of shared values in the Valley was perhaps most evident in the recruitment efforts of the founding fathers of Sunnyside, who

> selected a uniform type of people who possessed an integrity of purpose, an avowed belief in the principles taught by the Christian religion and a not-to-be-denied determination to make a home of their own with their own hands and of their own choosing, and who wanted to live among people of that same stamp. (Sheller, 1952, p. 253)

One of the aspects of that determination and integrity of purpose that has endured is a "doctrine of friendliness, neighborliness and honest rightness" (p. 253). Character was essential as the early pioneers sought to wring a living from the hostile, semiarid land. Such character was expressed through diverse principled beliefs best seen in the diversity of faiths and the number of active churches in the Valley in contrast to the many abandoned or alternative-use churches now so evident elsewhere. Also apparent today is the long tradition of congregations that co-exist and work together to tackle community issues. This long tradition of religious-based communitarianism continues to be evident across the Valley and, indeed, the Pacific Northwest. These are communities that continue to be proud of the distinctness of their family roots and heritage identities and mindful of the richness and creativity that this diversity brings. Across these shared values and cultures is a family-centered orientation. These aspects of the underlying rural culture reflect a worldview and lifestyle that are consonant with my understanding of the Latino culture. It suggests why Spanish speakers of Filipino and Mexican heritage have felt at home in the Valley over the last century. The shared values and culture evident in the Valley reveal why those who continue to discover it and value a family-centered rural lifestyle would see it as a good place to set down new roots.

The Yakima Valley has the highest concentration of agricultural jobs in Washington State. The number of agriculture-related jobs averages around 20,000, with peaks at harvest of over 30,000. These numbers give the state the fourth highest concentration of temporary farm worker jobs. The harvest jobs have drawn Spanish speakers from Mexico and Texas to the Valley in large numbers since the 1940s, although the harvest wages for field workers remain minimal. Many temporary workers and their families have settled in the Valley over the last half century. Migrant families rely on working as a family and knitting together a combination of income streams to survive. Strategies might include working for several small farmers. Established farms with labor-intensive operations and their associated packing and processing requirements provide further job opportunities. They exist, however, as a result of substantial infrastructure investment that began with irrigation, power, and rail service and has continued in areas such as controlled atmosphere storage: "In the 1950s, Wenatchee native Archie Van Doren introduced Controlled Atmosphere (CA) storage to the Washington apple industry. ... Now Washington has the largest capacity of CA storage of any growing region in the world" (Yakima Valley Museum, 2007c, ¶¶ 3-4). The world's largest irrigation experimental farm station is located at Prosser. Infrastructure support facilities of this scale also provide significant job opportunities for highly skilled tradesmen. Mexican heritage employees are a significant component of the workforce at all levels in local manufacturing operations. Thus the job market and the training opportunities arising from agriculture in the Valley extend well beyond field work.

A contrasting picture of the Valley and its agricultural link with the Pacific Northwest is seen in a description of the annual family migration between Texas and Washington State to work the harvest. The story comes from Garza, Reyes, and Trueba's (2004) research study that illustrated the contribution of the migrant lifestyle to school success for some migrant students. Sonia was one of the students (her name and those of her family are, of course, fictitious). Sonia's family has been making the return trip between Texas and Mt. Vernon, WA, for over two decades:

> Their yearly trek took them through what is called *la ruta de los migrantes*, the migrant's route, for those going to Washington. ... The drive is beautiful. ... However, when migrant families were on the road, their main objective was to get to their destinations safely and as soon as possible. ... It took about forty hours to drive approximately 2,500 miles. It was not a fun trip. (pp. 40-41)

Garza et al. explained that "Sonia knew the routine well. She described the annual ritual. All it took was a phone call from Mr. Ramírez's brother (the crew leader) in Washington, and the preparations for the trip began" (p. 40).

In 1997 the family worked across Washington State from late March or early April, harvesting asparagus, and through August, harvesting berries and cucumbers. In October the children stayed in Texas, and Mr. and Mrs. Ramírez returned to Oregon to harvest potatoes:

> For about six months, they traveled together, worked together, lived in very tight quarters together, and took care of each other. For the last twenty-one years, since they came to this country, this lifestyle has given them the opportunity to spend quality time together. There was a strong sense of family unity, which is almost expected living in a communal setting like this. (Garza et al., 2004, p. 40)

Sonia's description of the contrasts she saw within the Valley adds a dimension to the understanding of Latino strengths and social networks that was pertinent to this study.

> Texas migrant families, generation after generation, had been picking berries and working in the canneries in this area. The growers live in nice homes with neatly manicured lawns. The camps were nowhere to be seen. It was uncertain whether the camps or the beautiful homes were the anomaly in this area. Perhaps the camps were hidden away so they would not steal away from the beauty of these homes. Like many other labor camps, this camp was well hidden, out of sight, and, in a way, invisible. The fields were secluded behind lines of trees, and people not paying attention never really saw the migrant workers in the fields. However, they were evident in the grocery stores,

> laundromats, and many other businesses in the area. They spent thousands of dollars in the community. (Garza et al., 2004, p. 41)

This is a picture familiar to many of Mexican heritage in the Yakima Valley—it is part of their lived family history. Garza et al. identified resilience as a key factor in the school success of three Mexican heritage students. This same resilience characterizes many Valley residents and newcomers.

Statement of the Research Question

The rate and dispersion of change are increasing dramatically. In contrast to all of human history, in which economics is perceived to have involved the distribution of scarce resources, in the last decade, virtually all aspects of the economy on a global basis are experiencing excess capacity. At the same time the periphery is the least served by global adjustment mechanisms. I contend that with greater access to the cyber world, those on the periphery would have greater opportunity to obtain knowledge of and potentially greater control over, or at least mitigation of, the elements that influence their lives. This contention leads to the study question: What are the perceived reasons for access and usage of public-access computers among Spanish-speaking adults in agricultural communities of the Yakima Valley?

The subquestions that arose from this primary research question were whether and how outside information via ICTs (a) relates to existing information flows within the social network of participants, (b) might be perceived as offering the potential of personal benefit, (c) might be perceived as a useful communication channel, (d) might be perceived as a source of potentially beneficial information, and (e) might be accessed through existing community ‘socialization’ sites. An increased understanding of the issues embodied in these questions is necessary to gain an understanding of the interplay of access to ICTs and to information in contributing to the economic and social agency of individuals. Access to information is a first step toward becoming aware of alternatives and making informed choices. I collected and analyzed data to understand the purposive action that rural Spanish speakers are taking—a group identified as particularly socio-economically disadvantaged—in using public-access computers. Within these parameters I examined the informing and learning that might arise in relation to public policy and national initiatives to provide computer and Internet access through community public-access sites.

ICTs as an information and communication tool with global connectivity introduce new dynamics to the information flows within and across groups. Whereas social networks are a validation mechanism that vets external information and decisions are made on what, if any, action might be taken, media are the mechanism for socializing new ideas through stories that condition and engage. I looked at the perceived potential of computer-based ICTs in the processes whereby those on the periphery might envisage alternatives to their situation and effect purposive action toward change. I also attempted to identify key factors that affect the potential benefit to the economic situation of some of those who are currently socio-economically marginalized. I considered access and use of public computers and the Internet as an information conduit in rural agricultural communities, where strong social networks continue to counterbalance institutionalized information services and resources.

I drew on Lin's (2001) model of social capital to frame the study because his questions with regard to cyber-networks offered an interesting perspective from which to consider the digital-divide debates while also providing an appropriate frame for the core constructs of the study. His model emphasizes the mobilization potential of access to information-rich networks and captured an instrumental rationale for why individuals might have an interest in accessing the Internet. I used Schein's (2004) culture construct to relate agency, organizational behaviour, and information sharing. His anthropological notion of organizational culture is analytically comparable to social capital and, when applied to Lin's model, drew out the interrelationship of formal and informal informing processes, information flows, and learning processes. I also used Lin's model as the frame to highlight the human capital and social capital policy rationale in relation to development and adult learning as it has been applied to extending ICT access to alleviate rural disadvantage and poverty.

This study was about the informational role of ICTs and looked primarily at the access and usage of the Internet as a computer-based information network in bridging pockets of disconnect. What I found was that the computer and Internet access and usage evidenced among Spanish speakers in rural communities with a strong agriculture-based local economy has complemented the existing social information networks. In addition, because the study focused on such use at public-access sites, a number of which are public libraries, my findings bring out the integral interrelationship between information processes and informal or self-directed learning.

Significance of the Study

A growing body of research has suggested that the creativity and ingenuity around ICTs and local adaptation comes from novice or grassroots users. This is where the greatest agility to respond in the compressed timeframe of current change cycles exists. It is where adaptation can be tempered through local perspectives and cohort interactions. My contribution to this body of research is a reframing of Lin's (2001) social capital model to highlight an 'information commons' component and its potential in bridging localized pockets of disconnect.

Immigrants come to the US from around the world, and one in five current immigrants is Mexican. Movement across the border is part of the Mexican culture (McWilliams, 1948/1968) and continues with or without the benefit of legal status. Indeed, "about 15 percent of Mexico's workers reside in the United States" (US-Mexico Binational Council, 2004, p. 1). Those who work in agriculture, however, have a particularly difficult path if they are not to become part of a farm-worker cycle of migrancy and poverty, an historical cycle that Hahamovitch (1997) has documented. Yet this migration flow continuously renews the agricultural workforce of the US, including the Yakima Valley. Access to ICTs can perhaps interrupt rural poverty patterns through access to information and education.

Kirschner-Cook (1986) examined Hispanic demographics in the Pacific Northwest and found that national patterns related to disadvantaged status are reflective of Northwest Hispanics. Across the population as a whole, however, those employed as farm workers reflected a predominance of Hispanics, 16.2% compared to 1.9% Whites. Thus, because rural residents are more disadvantaged than their urban counterparts, Hispanics living in highly agricultural counties are "very disadvantaged" (p. 213). The Washington State Workforce Training and Education Coordinating (WSWTEC) Board (2000) similarly noted that, although the state economy is robust, rural areas have reflected stagnating wages and high unemployment. In rural eastern Washington, where agriculture is a significant job source for about 22% of families, the Board observed that

> many workers are trapped in low-wage agricultural jobs. Among the approximately 170,000 migrant and seasonal farm workers, the median annual income is $5000. Labor-intensive agriculture, such as fruit and vegetable production and processing, is seasonal work, and workers in the industry suffer unusually high unemployment rates. Over 41 percent of jobs in agriculture are

> classified as low wage (paying less than $6.50 per hour), substantially more than in any other industry. (p. 22)

The Board has identified rural residents, residents of color, and the foreign-born as being in particular need of increased access to education and training because they comprise a greater proportion of the economically disadvantaged. The emphasis is on adults and raising family income. This again is an area where ICT access and training can perhaps make a substantive contribution toward alleviating poverty.

Assumptions

I assumed the following:

- that I would be able to recognize and separate my own assumptions and values from those of the participants;
- that, although I am from an urban background and a cultural outsider, I would be able to relate to and interact with community members;
- that the participants have their own research needs and priorities, that their questions are important, and that, as L. T. Smith (1999) observed, "Research helps us to answer them" (p. 199).

Limitations

I recognized the following limitations:

- The study relied on the interpretations of one whose appreciation for the Latin American culture is based on exposure over many years rather than membership. I addressed this through ongoing validation with local Spanish-speakers some of whom are, or have been, migrant agricultural workers. In addition, the study drew on a wide range of documentary sources.
- The study was limited to one locale. It might have turned out that the area I chose would have inherent barriers that unduly limited its potential as a data source. I was prepared to relocate if, after due consideration, that should be necessary to acquire data with the potential for meaningful analysis. Such relocation was not required.

Delimitations

I decided on the following delimitations:

- In this study I examined only information access available to the general public with no subscription or site-access charges. The study did not address information access in the context of K-12 education or workplace training.

- This study was further delimited to Spanish-speakers who use public-access computers in the Pacific Northwest.

- Additionally, the study participants were delimited to professionals associated with such public-access sites. The direct voice of the current rural agricultural worker is thus absent from the study findings. I anticipated that such professionals would have the necessary breadth and depth of experience with both the phenomenon and the context to provide robust data with the potential for meaningful analysis.

Definitions

I define a number of terms more specifically than does common usage. The most frequently used terms are defined here; others are defined as encountered in the text.

Cyber-networks: The social networks in cyberspace, and specifically on the Internet (Lin, 2001, p. 212).

Development communication: The strategic application of communication technologies and processes to promote social change (Wilkins, 2000, p. 197).

Environmental Scanning: Scanning for information about events and relationships in a company's outside environment, the knowledge of which would assist top management in its task of charting the company's future course of action (Aguilar, 1967, p. 1).

Information: Data that have been organized and communicated (Porat, 1977, p. 2).

Information and communication technologies (ICTs): A means of capturing, processing, storing, and communicating information (Heeks, 1999, p. 1).

Information behavior: Those activities in which a person may engage in identifying his or her own needs for information, searching for such information in any way, and using or transferring that information (Wilson, 1999, p. 249)

Information-use environment: The set of those elements (a) that affect the flow and use of information messages into, within, and out of any definable entity or group of clients; and (b) that determine the criteria by which the value of information messages will be judged in those contexts (Taylor, 1986, p. 24).

Information seeking: A complex information and communication activity that requires access to diverse sources of information to deal with personal, social, and work-related problems (Spink & Cole, 2001, p. 45).

Knowledge: A set of organized statements of facts or ideas that present a reasoned judgment or an experimental result that is transmitted to others through some communication medium in some systematic form (D. Bell, 1976, p. 175).

Social agency: Social relationships and mindful communities of practice; people's relationships with each other and how they draw the making and remaking of the material world into their very being (Dobres, 2000, p. 1).

Summary and Organization

In this chapter I outlined the reality of poverty and socio-economic disadvantage that is particularly acute for Spanish-speaking households in rural, agriculture-based communities, including those in the Yakima Valley. Access to information and cyber-networks and computer training underlie national policy-based initiatives to provide Internet access to address this reality. I outlined the research question to be considered to contribute to a greater understanding of critical factors in choosing accessible information channels and network interventions pertinent to the rural poverty context and thus frame policy responses that, with minimum cost and negative impact, contribute to better meeting the core needs of poor rural households.

Chapter 2 provides an overview of the literature underlying the theoretical framework of this study. Chapter 3 outlines the methodology of the study. Chapter 4 presents thematically the study data that I used to consider computer-based networks as Latino newcomers use them in seeking to become established. Chapter 5 considers the study findings in relation to the theoretic framework. The study conclusions are presented in Chapter 6, along with reflections on the study processes, community-level recommendations, and suggestions for future research. Appendices A and B include the study's interview guide and consent form. Appendix C includes background information on Latino migrants and small farmers in the US.

CHAPTER 2:

CONCEPTUAL CONSTRUCTS

Chapter 1 outlined the rationale for this study and identified its research question. This chapter outlines the conceptual and theoretical underpinning of the study. These conceptual constructs informed the study design and framed the data analysis and interpretations.

Overview

The study used Lin's (2001) social capital model to relate information flows and network accessibility as a framework for understanding the role of technological vis-à-vis personal information networks. The first section outlines Lin's view of social capital and information as a resource embedded in social networks that can be accessed and mobilized for individual benefit. As Lin observed, access to the information flows and resources of the Internet raises new questions with regard to information networks. The section then outlines key literature related to information access, information behavior, and information seeking as they might relate to social networks and ICT-based information. I outline the concepts of information-use environments, sense making, and environmental scanning as processes particularly pertinent to information flows and cyber-networks.

The next section frames the understanding of ICTs and adult learning that underpin the study. I use library and information literature to highlight information channels and the socio-economically disadvantaged. As well, I outline the literature related to instructional media and information technologies, draw links to social capital, and discuss the key literature related to adult learning, with an emphasis on ICTs and Spanish speakers.

The third section overviews program initiatives and policy responses to the digital divide. The section outlines their foundation in economic development theory and then relates them to notions of human capital and social capital. The section then highlights the digital-divide literature with regard to public-access computers, particularly in rural areas or libraries, and to Spanish-speaking or minority users. The emphasis is on computer-based or social-information networks.

The fourth section overviews organizational culture in relation to leadership and the interplay of group and individual culture. The construct of trust relations is outlined to provide depth to processes of information sharing and informal or adaptive learning. Three organizational structures are introduced and related to the notion of relational capital and its role in information processes, cooperation, and competitive advantage. These four sections of the literature review encompass the core analytic context and concepts of this study.

Information and Lin's Social Capital Model

Lin (2001) defined *social capital* as "resources embedded in a social structure which are accessed and/or mobilized in purposive actions" (p. 29). He identified four reasons that social ties as resources embedded in social networks enhance action outcomes: (a) Social ties facilitate the flow of information, (b) they may exert influence on one's behalf, (c) they confirm social credentials, and (d) they reinforce identity and recognition. In his model (Figure 1), Lin posited a link between returns and network accessibility.

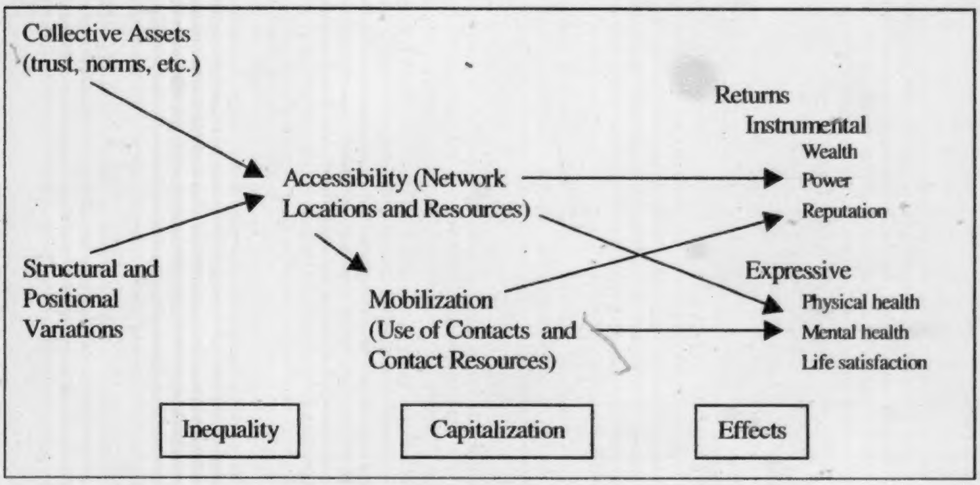
Collective Assets
(trust, norms, etc.)
Structural and
Positional
Variations
Accessibility (Network
Locations and Resources)
Mobilization
(Use of Contacts and
Contact Resources)
Returns
Instrumental
Wealth
Power
Reputation
Expressive
Physical health
Mental health
Life satisfaction
Inequality
Capitalization
Effects

Figure 1. Lin's (2001, p. 246) social capital model.

The central theme of Lin's theory is "that capital is captured in social relations and that its capture evokes structural constraints and opportunities as well as actions and choices on the part of the actors" (p. 3).

Lin (2001) observed that social capital theories "have so far been built largely on observations and analyses of localized, time-constrained social connections" (p. 227). He saw the growth of cyberspace networks as the sign of "a new era in the construction and development of social capital" (pp. 226-227). Of relevance to this study is the question that Lin raised: "If localized networks remain meaningful, what do cyber-networks mean in this context?" (p. 227).

The study examined aspects of information flows for groups with strong social networks, both localized and transnational, who can be considered disadvantaged in their access to and use of cyber-networks. Anderson (2004) identified the information role of social networks in Spanish-speaking agricultural households such as, for example, those that operate within and between Cobden in the US and Cherán in Mexico:

> Their families and extended families are anchored in the village, and robust biological kin networks are augmented by the extensive and intricate fictive kin relations of *padrinazgo* and *compadrazgo*. Information networks (both factual and gossip) about the community and between Cobden and Cherán are of easy access, up to date, and usually accurate. (p. 369)

ICTs as conduits of information can act in a fashion similar to social network ties and thus be used to inform actions, thereby enhancing action outcomes. This study looked in particular at public-access computers and adult Spanish speakers' use in agricultural communities.

Information Networks: Resource or Tool

Lin (2001) posited that social capital is an extension of traditional economic capital while acknowledging that the notion of social capital has "its theoretical roots in social relations and social networks" (p. 28). He suggested that the mechanisms and processes of capital and its investment "help bridge the conceptual gap in the understanding of the macro-micro linkage between structure and individuals" (p. 3). Lin drew on a Marxian view that market relations are social relations and on a Marxian notion of capital, in contrast to that found in traditional Ricardian economics. Lin's derived definition of capital is "an investment of resources with expected returns in the marketplace" (p. 3). He argued that the embedded resources of social networks are captured as capital and that these embedded resources reflect an investment of time and effort and are expected to generate a return in the marketplace. Such returns include instrumental benefits such as, for example, wealth and expressive benefits such as life satisfaction. The expressive returns that Lin identified present no basis for valuation of capital in its traditional sense. There is no marketplace for life satisfaction or any unit of exchange. The capitalization potential of social relationships presents the same problem. Moreover, Lin equated both production and consumption activities with investment. In addition to a lack of conceptual clarity in Lin's use of economic constructs, his argument for social capital as traditional capital does not meet a number of the criteria for a convincing economic argument.

The traditional concept of capital as an asset can, in certain instances and within defined boundaries, be extended to information as capital (see Gigler, 2004). In the corporate world this is most evident in terms of intellectual property such a patents or copyright. These are proprietary rights legally granted for a defined period of time and represent an asset that can be bought and sold. Information also has capitalization potential as a 'commodity' or exchange transaction. Thus, although Lin's argument for social capital as traditional capital is unconvincing, such an argument can be made for information as capital.

In further building his argument for social capital as capital, Lin (2001) drew on the traditional economics of Adam Smith, "who included all the acquired and useful abilities of the population in a country as part of capital" (p. 8). The attributes and the resulting added value are embedded in the individual. Thus, market differentiation based on abilities, skills, or knowledge allows some laborers to demand a greater return in exchange for their work. Lin posited that investing in social capital is expected to generate a return in the marketplace in the same way that investing in greater skills and abilities does. The marketplace can, however, recognize a plumber or a doctor, and their capabilities can be assessed. The question that can be asked concerns the social capital equivalency. In contrast to Lin, social capital theorists in the social sciences tend to present human and social capital arguments as a metaphorical use of the notion of capital.

Social-policy use of the notion of human capital arose from development economics and was extended by educational economics. Schultz's (1961, 1962) empirical analyses formed the basis of a theoretical argument in support of human resources as a form of capital. Schultz (1963) proposed increased earnings as the measure of benefit from an individual's investment in his skills and knowledge—particularly investment in education (see also Becker, 1964). Coleman (1988, 1997) identified a link between school achievement and family, and his later conceptualization of social capital identified family as a form of social capital, also referred to as *family capital* and *relational capital*. There has since been the recognition that causal attribution to schooling of greater lifetime income may be, rather, a correlation with higher socio-economic status. The factors that increase the likelihood of greater education, such as family social and economic position, also contribute to greater lifetime earnings. B. Fine (2001) has argued that it is through the adoption of the concept of social capital as capital that economists seek "to complement economic with social engineering" (p. 196).

Lin (2001) distinguished his social capital perspective from that of Bourdieu's cultural capital. Rather than its being a product of free will and rational choice, Bourdieu saw cultural capital as the passive acceptance of a way of thinking and doing that the dominant class quietly imposes through education, particularly schooling (see Bourdieu & Passeron, 1977). Lin observed that "it is clear to Bourdieu that education, or indeed any training that can be taken as human capital by some, can in fact be seen as cultural capital by others" (p. 15). For Bourdieu, social capital referred more specifically to social relationships of enduring significance. Lin noted that, like Bourdieu, he did not rule out action choices on the part of workers, or retention of the benefits of capital investment, including class movement. Lin viewed both human and social or cultural capital as conceptual extensions of his definition of capital: "an investment of resources with expected returns in the marketplace" (p. 3). Lin focused his discussion on Bourdieu's view of social reproduction as complex social processes "intrinsically related to the idea and processes of practice" (p. 14), (see Bourdieu, 1977).

Lin (2001) identified control as central to the very definition of social capital. He elaborated that control is reflected in both the network location and its hierarchical position. Thus, "information, influence, social credentials, and reinforcement are all reasons why social capital works or controls" (p. 20). Lin viewed social reproduction and control as operating through "the core-peripheral world system, in which the core actors establish links and networks to peripheral actors for their continuing domination of information, resources, and surplus values" (p. 216). He suggested, based on the Falun Gong movement, that in the social networks or global villages of cyber-networks, "it is no longer necessary or possible to reproduce the core-peripheral world system" (p. 216). Lin foresaw a new era of global villages. Falun Gong provided a "vivid and powerful demonstration, for the first time in history, of how cyber-networks were implicated in a major social movement and countermovement" (p. 222). Lin explained that this movement illustrated "how social networks and capital provide the mechanisms and processes by which an alternative ideology, challenging prevailing ideology and institutions ... can be institutionalized" (p. 225). Moreover, on the basis of collective counter action,

> while not denying that the dominant states and actors remain actively interested in controlling the development of cyberspace, I argue that cyber-networks represent a new era of democratic and entrepreneur networks and relations in which resources flow and are shared by a large number of participants with new rules and practices, many of which are devoid of colonial intent or capability. (p. 215)

Such a position fails to take account of the established body of literature that has outlined how movements are ultimately co-opted within the establishment. Pertinent to this study, however, is the position within Lin's social capital model of information as a key means of control and his view of 'freely available' information as counterbalance.

Lin (2001) observed that through cyber-networks, "information is freer and more available to more individuals than ever before in human history" (p. 216). He further argued that what makes cyber-networks rich in social capital is "access to information in conjunction with interactive facilities" (p. 215). As social capital, cyber-networks carry resources "that go beyond mere information purposes" (p. 215). He proposed cyber-networks as "an important investment for participants' purposive actions in both the production and consumption markets" (p. 215). Saha (2005) identified Lin's theory as "the most elaborate attempt to understand how social capital brings advantage to those who posses and mobilize it" (p. 747), whereas the link to education that Saha identified was through Bourdieu's (1986) cultural capital and Coleman's (1988) social capital. Saha, as did Lin, observed that "access to cultural and social capital is likely to be less dominated by a particular social or national group, given the manner of access through cyber-networks" (p. 3).

Social reproduction is similarly related to technologies as practice that embodies how we have socially come to do things. Dobres (2000) recognized that "technology is without doubt a complex social practice, no matter the time, place, or kind of society or material activities at hand" (p. 9). She suggested that "without embracing the dynamics of social agency and all that that entails, we can never comprehend the fullness of the quintessentially human experience" (p. 9). Dobres defined *social agency* as "social relationships and mindful communities of practice" (p. 1). As an archaeologist, Dobres looked at "social relationships and how they were forged, mediated, and made meaningful during the everyday practice of material culture production and use" (p. 1). Similarly, with regard to computer learning, Turkle (1997) observed that "we make our technologies, our objects, but then the objects of our lives shape us in turn" (p. 8). Williams, Stewart, and Slack (2005) found, based on the results of an eight-country empirical study of ICT applications, that following the period of development, "ICT applications are increasingly bound up with social practice" (p. 6). Of particular pertinence to information technologies and this study, however, is Franklin's (1990) caution against an uncritical acceptance of technologies that by their nature increasingly define and control as they become entrenched in the social landscape. As she observed, although technologies are developed and used within a particular context, as they become mainstream and then "institutionalized, users often become captive supporters of both the technology and the infrastructures" (p. 97).

In discussions on access to the information-age technologies of cyberspace, the Congressional Hispanic Caucus has urged Hispanics to "join and shape this discourse to ensure inclusion and protection of Hispanic interests, specifically in promoting user-friendly culturally relevant options for pursuing new technological horizons" (Schement, 2000, p. 58). Access to information and to the communication technologies of the Internet are at the center of policy debates in which Latinos are urged to participate. These debates are often framed in terms of building human and social capital. In this study, with its focus on information and social networks as information conduits, Lin's (2001) social capital model provides an appropriate starting point.

Information Access, Behavior, and Seeking

McCreadie and Rice (1999a, 1999b) developed a multidimensional conceptual framework for access to information based on their analysis of an extensive and multidisciplinary literature review. The results identified four conceptualizations of information: (a) resource or commodity, (b) data in the environment, (c) representation of knowledge, and (d) part of the communication process. All of these conceptualizations come into play in this study. These in turn generate six views within which access to information is defined as access to knowledge, technology, communication, control, goods/commodities, and participation (McCreadie & Rice, 1999a). Some of the implications of the lack of information access that McCreadie and Rice identified are noted in context in this study: as, for example, socio-economic opportunities. However, they also identified a compounding effect—an effect similar to compound interest. For example, "access to one technology can increase future access, experience, advantage" (p. 50). Thus, not only do the disadvantaged not receive the original anticipated benefit, but their potential to future access and benefits is also further diminished (see also Bridges.org, 2002, p. 3).

McCreadie and Rice (1999a) identified six areas of influence or constraint on access to information and the implications that arise from them. Table 1 highlights some of the identified implications that are pertinent to this study.

Table 1

Access to Information: Constraints and Implications

Constraint	Implications
Physical	Likelihood of system use; can lead to perceived availability or convenience
Cognitive	Notion of relevance; influenced by social background, experience
Affective	Influenced by perceived convenience, dependability, availability Influenced by familiarity, perceived control over situation, resources, experience
Economic	Influenced by policy, class membership, educational and social background
Social	Influences type of information to which one has access Influences whether individual is able to use access to information effectively
Political	Influenced by communication competence, resources, social environment

(Adapted from McCreadie and Rice, 1999a, p. 62)

This study adds depth to our understanding of these constraints in relation to Spanish speakers in rural areas.

McCreadie and Rice (1999a) also found that "analysis of what is implied by access to information uncovers yet another issue of concern across the disciplines: facets of the information seeking process" (p. 57). They identified four facets of the information seeking process: (a) context, (b) situation, (c) strategies, and (d) outcomes. Context as a factor in the information-seeking process can include the socio-economic and experiential context of individuals who might be seeking information. The process of information seeking is defined as "a complex information and communication activity requiring access to diverse sources of information to deal with personal, social, and work-related problems" (Spink & Cole, 2001, p. 54). In its broadest meaning, information seeking is therefore a process pertinent to the current study.

Wilson (1999) encompassed information seeking within a model of information behavior. He defined *information behavior* as "those activities a person may engage in when identifying his or her own needs for information, searching for such information in any way, and using or transferring that information" (p. 249). Wilson (1997) specifically looked at fields other than information science and found that "the heart of the subject lies in work in psychology and sociology" (p. 551), particularly in applied psychological and sociological research. His model encompasses stress/coping theory; person-in-context; social learning, including self-efficacy; and both the passive and active aspects of information seeking. As Wicks (1999) showed in examining information behavior, we must understand the context of the user as "including the role being performed and the social network of that individual" (p. 222). Pettigrew (1999) also confirmed the importance of contextual factors and used social network theory in her investigation "of the flow of human services information (HSI) among nurses, the elderly and other individuals at community-based foot clinics" (p. 801). She found that "the clinic functions as a rich information ground because information is shared in multiple directions ... both purposefully and serendipitously" (p. 812). This notion of information grounds as it relates to information seeking is of particular relevance to this study.

Lin's earlier work encompassed human communication (Lin, 1973), information channels related to the diffusion of innovation (Lin & Burt, 1975), and status attainment through social ties (Lin & Dumin, 1986). Johnson (2005) suggested a link between his theory and those of several information behavior theorists, including Chatman's (1996, 2000) information poverty, Savolainen's (1995) everyday information seeking, and Pettigrew's (1999) information grounds. The link that Johnson identified centered on the increased likelihood of finding needed information with access to social networks that are diverse and high in social capital.

Information-Use Environments

For Taylor (1986), information seeking reflects previous experience and learning while being highly dependent on context. He defined *context* as information-use environment (IUE), which he specified as

> the set of those elements (a) that affect the flow and use of information messages into, within, and out of any definable entity or group of clients; and (b) that determine the criteria by which the value of information messages will be judged in those contexts. (p. 24)
>
> Taylor outlined the decision process that precedes information seeking as follows:
>
> - How important is the problem and its resolution to me?
> - How much time and energy do I have and want to invest in the problem?
> - What information is needed to address the problem?
> - Where do I get the information, and how useful is it likely to be? (p. 226)

With the growing use of the Internet for information seeking, alternative strategies have been proposed. More recently, Boyd (2004, 2005) proposed a 'fuzzy' approach to multichannel information seeking in recognition of the information-seeking environment as multivalent. With regard to information seeking, he would add the following factors to those that Taylor (1986) identified:

> - information that they have access to;
> - information they receive;
> - information source; and
> - seekers comprehension of that data. (Boyd, 2004, p. 81)

Taylor characterized these as cost-benefit questions because they determine whether and where to seek problem-specific information. Implicit in the decision process is a degree of knowledge in relation to the problem, which begins with the recognition that it is an informational problem.

Sense Making

Dervin (1999) proposed that "information is a tool designed by human beings to make sense of a reality assumed to be both chaotic and orderly" (p. 39). This constructivist approach to information focuses attention on "the constant design and redesign of the sense by which humans make and unmake their worlds" (p. 41). As a process of sense making, information seeking "is not merely a purposive, linear, problem solving-activity" (p. 46). The approach was developed to assess how people make sense of their interactions with institutions, media messages, and situations. It initiated a body of literature on user-centered library services, and a practical application has been training librarians how to conduct a sense-making interview. The interview questions were designed to engender recognition "that the power inscribed in information [must] be subject to continuing deconstruction (i.e., constant analysis and reanalysis)" (p. 42). In terms of this study, the notion of sense making provides a link between information and knowledge creation.

Weick (1995) differentiated everyday sense making from organizational sense making. He posited that "organizations structure and are structured by sense-making processes" (p. 64). He saw the relationship between information and sense making as an "area of growing importance" (p. 177). For Weick, sense making was an active and "ongoing effort to deal with that which is unique and transient" (p. 171). He observed that this occurs more frequently as technology outputs become more complex and when organizational structures are less hierarchical and more organic. Weick asked, What happens to sense making when it is organized horizontally rather than vertically? Wrzesniewski, Dutton, and Debebe (2003) developed a model of intrapersonal sense making that focuses on the intrasubjective aspects of Weick's framework. Rather than task information, their model privileges "the centrality of social interactions around a wide variety of information" (p. 124).

Environmental Scanning

What might be considered passive resistance or resistance to change could instead reflect the lack of an operationalizing image or a connection point to the alternative. Lin (2001) characterized social capital "as investment by individuals in interpersonal relationships useful in the markets" (p. 25). An investment, however,

> must reflect that ego is cognitively aware of the presence of such resources in her or his relations and networks and makes a choice in evoking the particular resources. There may be ties and relationships that do not appear in ego's cognitive map and thus not in her or his awareness of their existence. (p. 25)

This suggests that those who have not been exposed to, much less had the opportunity to explore, the potential of the embedded information resources of the Internet are further disadvantaged by having no experiential perception of the potential of these resources, and thus no basis to conceive of capitalizing on them. With a dense social network that meets their known information needs, they may be less motivated to investigate what they view as an outsider alternative. The alternative of cognitive overload must also be recognized, and this can arise on multiple levels. With regard to online community information, Durrance and Pettigrew (2002) found that, in addition to "most information appearing in English only, users also commented on how some sites contained information that was written using jargon or at a level that was too high for many to understand" (p. 9). This problem is compounded for ESL community members. Moreover, cognitive issues such as information overload and instructions that presume tacit knowledge outside the experience base of the receiver and are thus vague introduce additional informational problems (see, e.g., Reber, 2003).

Summary

In this section I outlined Lin's (2001) argument for social capital as capital; identified potential links between his social capital model and cyber-networks and information seeking; outlined the key literature on information access, information seeking, sense making, and information behavior that informed the study; and overviewed three informing concepts: information-use environments, sense making, and environmental scanning. In the next section I will discuss the literature and the key concepts of ICTs used in this study.

Information Communication Technologies

In 1999 Heeks defined ICTs as the "means of capturing, processing, storing, and communicating information" (p. 1). He categorized the technologies as

- 'Intermediate' technology, still based largely on analogue information held as electro-magnetic waves such as radio, television and telephone.
- 'Literate' technology, based on information held as the written word such as books and newspapers.
- 'Organic' technology, based solely on the human body such as the brain and sound waves. (p. 1)

At the organic or personal level, oral traditions of information sharing and dialogic processing are at the core of social information networks. The digital Internet has extended information sharing and discussion through global virtual networks. Indeed, it was in the initiation of a virtual network of research practitioners that the Internet began and took root as an ICT. The information exchange imprint combined local and global reach at the same moment. The Internet has also become a mass media that uses the World Wide Web as a cost-effective channel for agencies, corporations, and organizations of any size to distribute and update information to a geographically dispersed audience. At the same time, the Internet retains the potential for individual and niche interest use by a mass audience or limited to closed groups.

Ong (1988) observed that, as readers of research books, we "are so literate that it is very difficult for us to conceive of an oral universe of communication or thought except as a variant of a literate universe" (p. 2). Ong further observed that although "every culture knows of writing and has some experience of its effects, ... to varying degrees many cultures and subcultures, even in a high-technology ambiance, preserve much of the mind-set of primary orality" (p. 11). Dudley (1993) provided an example of the distinction:

> In societies in which design drawings are not used, the building process has to proceed in a series of self-sufficient steps, each of which must make sense in terms of the knowledge of the builder. Each step must be capable of communication through words and gestures. (p. 75)

Stanfield (1998) identified the cultures of inner-city residents and non-Western immigrants as oral-based cultures that function within print communities.

Information and Communication Channels

The current Internet and multimedia focus tends to overshadow the reality that information has always flowed and will continue to flow through varied and multiple media and channels. In a study of pastoral clergy, Wicks (1999) examined the interrelationship of role theory and social network theory as reflected in an open versus closed approach to information seeking (p. 205). With regard to different types of information sources, he found that formal sources are preferred in preparing to preach, whereas informal sources are preferred in making administrative decisions. In subsequent research on the information channels of the elderly, Wicks (2004) found that for individuals not in the workforce, social network theory is more useful than role theory in examining the choice of information source. In comparing the role of Internet to other information media in a nonwork context, Savolainen (1999) found that "the substituting effects of network services to daily communication and particularly to information seeking are quite minimal" (p. 780) and that "although the number of Internet connections per capita in Finland is currently the highest in the world, most Finns have not yet used any network services" (p. 771).

Access to the time-sensitive marketplace information that farmers require is an area in which farmers worldwide are using global ICTs ever more efficiently. The marketplace information needs of rural Indian village farmers are comparable to those of farmers elsewhere:

> For achieving economic benefits, villagers must know how to get the best deals from state organizations and market operations. To sell their crops at the highest price, they need to know, for instance, what prices are currently being offered for different grades. ... Without being well informed about price trends and market practices they can hardly achieve very much. (Krishna, 2002, p. 165)

In Peru, India, and Kenya 'remote' villagers are adapting state-of-the-art tools to gain local marketing advantage. They have quickly adopted cell phones and IM and in some areas are moving to incorporate podcasts. Rural agricultural workers in Mexico and Latin American might well have an established e-mail account that they have used at the ubiquitous and pervasive cybercafés (Proenza, Bastidas-Buch, & Montero, 2001; Robinson, 1998; Robinson & Silva, 2001).

In an extensive study of culturally based information-seeking behavior, Metoyer-Duran (1993) examined the information sources and preferences of individuals whom she termed *ethnolinguistic gatekeepers*—people who informally act as information resources to members of their ethnolinguistic communities in California. Metoyer-Duran found that "the gatekeepers demonstrate high levels of awareness and use of information technologies to address their own information needs and those of their communities" (p. 115). Indeed, some gatekeepers are "at the 'cutting edge' of the information transfer process in an electronic age, while others aspire to be at the forefront in the use of information technologies" (p. 61). For the gatekeepers, "next to in-person contact, the telephone was viewed as the primary means of receiving and sending information" (p. 59). Agada (1999) examined the information-use environment of inner-city African American gatekeepers. In this case the gatekeepers experienced "inadequate awareness of and access to information and resources" (p. 81). They perceived information services "in inner city environments as serving the interests of 'outsiders'" (p. 83). Interpersonal communication was "the favored medium for information seeking" (p. 82).

Spink and Cole (2001) explored the place of the Internet among other sources and channels as a tool for communication and information seeking and looked at the information-seeking channels that African American low-income households use. Participants in the study had "few financial or information resources, limited employment opportunities, and limited educational opportunities" (p. 54). Spink and Cole observed that "the poor may process information differently" (p. 57), which suggests that the ways that they conceive of the various channels and use information coming from the various channels differs. Spink and Cole developed an information environment model to match their participants' information priorities and information channels. The priorities moved from news that was the most significant or closest to the participants to security, health, education, and employment. They found that the information channel used becomes more formal as one moves from news to employment and suggested that health and employment are two areas in which the potential for the use of online information is the greatest.

Using a questionnaire and focus groups to study the information-seeking behavior of Latinos in California, Ramírez (1997) also examined information channel preferences. He found that television "plays a major role in how Latino residents of Pacifica obtain their information" (p. 40) and that over 99% of the participants had access to one or more television sets at home. In a study carried out for the Tomás Rivera Policy Institute, Macias and Temkin (2005) found that 99% of the bilingual Latinos in California watch television and that, as a group, they watch it a great deal. Although they watch both Spanish and English channels, for news, in particular, bilingual Latinos will choose to watch a Spanish over an English channel.

As Schramm (1964) observed, "All our experience with the mass media illustrates how easy it is, voluntarily or involuntarily, to learn from them" (p. 127). Schramm identified the role of mass media in three areas: watchman (informing), decision making for action, and teaching. The informing or watchman functions could be handled by mass media directly. The decision-making function, particularly when it requires change to strongly held attitudes, beliefs, and social norms, could be helped by mass media. Teaching could be handled directly by media. The mass media could widen horizons, focus attention, and raise aspirations. As Schramm noted, however, what remains key are interpersonal communications and group decisions.

Instructional Technology

Instructional technology, encompassed by educational technology, is viewed as the use of technology in teaching and learning. Eraut (1996) noted that

> entrants to educational technology during the 1960s usually arrived by one of two routes—audiovisual education or programmed learning. Each was associated with a number of possible conceptual frameworks, which practitioners adopted according to the nature of their jobs, their training, and their personal preference. (p. 2)

Audiovisual education has "expanded into a tradition of applying within education the technologies developed outside it for entertainment, information handling and communication" (p. 1). Eraut also observed that with the arrival of each new medium, hopes are raised "for an impact on education similar to that achieved in the entertainment, communication, and information handling aspects of society" (p. 11). In his history of educational technology in the US, Saettler (1990) outlined the long tradition of media use in adult education, starting with the use of the lantern slide in the American lyceum circuit as early as 1826 and continuing in the Chautauqua Institution. The media broadened over time to include motion pictures, educational radio, and educational television. Studies were initiated as early as 1921 to examine the effectiveness of visual media. Federal agencies such as the Office of Education and National Defense provided funding for research and development. The Fund for the Advancement of Education that the Ford Foundation established was instrumental in the development of educational television, which had virtually replaced educational radio by 1980. Saettler noted that the *Sesame Street* programming for children, which was developed outside the traditional education institutions, was particularly innovative and effective. Radio and television continue to be pervasive information channels that support primarily informal adult learning.

ICTs such as radio and television have always offered those who are not print literate or not comfortable in using the local language opportunities to increase their knowledge and skills. Those possibilities continue to increase with the new ICTs such as voice recognition, translation software, and multimedia (see, e.g., Tomás Rivera Policy Institute, 2002, p. 8). ICTs can be used in ways that are comparable to the oral tradition of Indigenous communities to disseminate knowledge, as Warschauer (2000) found in a four-year ethnographic study of online technologies as part of the Hawaiian language revitalization effort. Many students of Hawaiian language and culture found "Internet-based communication and learning consistent with Hawaiian ways of interacting and learning" (p. 162). In addition, the integration of different media was culturally appropriate because "Hawaiians have traditionally passed on knowledge through a variety of media ... rather than principally through text-based instruction" (p. 163). Latinos, like Hawaiians, have a strong oral tradition consonant with multimedia and visual learning.

Computer-assisted instruction (CAI), or computer-based instruction (CBI), the current programmed learning component that Eraut (1996) discussed, continues to be used effectively in education, in the workplace with a human performance focus, and in software tutorials. Programmed or individualized instruction involves providing corrective feedback to users. Advances in both personal computer (PC) software and hardware resulted in the development in the 1980s of CAI modules on a wide range of topics and skills; they were generally used to supplement classroom instruction.

Anger, Tamulinas, Uribe, and Ayala (2004) suggested that "training people with limited formal education, from a different culture, who speak a different language than their majority coworkers and supervisors, poses one of the greatest occupational training challenges of our time" (p. 375). They reported the results of adapting CBI for use in training at Monrovia Nursery in Dayton, Oregon. The software, which offers training on the proper use of respiratory protection when spraying, was used with 61 volunteer participants, 59 of them from Mexico. Their education ranged from 0 to 16 years, 3 had completed a GED in the US, and 10 had some knowledge of English. Almost all completed the training and the posttest. Although the participants with less than three years of education tended to have limited prior exposure to computers and needed assistance in using CBI initially, they were unlikely to need it by the third session. Anger et al. concluded that there is the potential for employees with limited formal education to use CBI methods cost effectively.

As in the past, military training requirements continue to drive the development of innovative and leading-edge instructional media. Military training interest is now centered on e-learning that is available in the field and on simulation training that incorporates e-tutor feedback (see, e.g., Harris, 2002). This builds on advances in the field of artificial intelligence. More routine applications of artificial intelligence for learning include video computer games and strategy games such as chess. For those unfamiliar with computer-based learning or simulation learning, games and gaming can offer a motivating entry point. Alternatively, others might be motivated to learn enabling information or skills from a simulation such as Virtual Leader™, which Aldrich (2005) developed. Aldrich noted that most of us have spent too much time in formal education. As a result, "no matter their work experience or extracurricular activities, few are prepared for the shift in education models that simulations represent. Even if they think they are" (p. 242). A Virtual Leader™ user commented on the blog that "I had no idea how intense it is to consciously consider everything that goes on around you when working with a group of people."

Turkle (1997) framed the ongoing dilemma that educators face around the use of simulation software in the classroom. Simulations, although they teach users to think about complex phenomena in an active way, "get people accustomed to manipulating a system whose core assumptions they may not understand and that may not be 'true'" (p. 7). In abdicating to the simulation, we accept the 'opacity' of the model. As Turkle noted, people need to understand the distortions imposed by simulations because, "increasingly, understanding the assumptions that underlie simulation is a key element of political power" (p. 8).

Visualizations are a less demanding method of presenting the world from a different perspective. Development of *Cellular Visions: The Inner Life of a Cell* (Marchant, 2006) arose from the redesign of Harvard's undergraduate life science program in which 3-D animations were created to illustrate complex biological and chemical processes. In contrast to textbook photographs and graphics, the animations brought the processes to life (see Powell, 2006). The multimedia presentation was used both as a motivation tool and to improve learning outcomes. An alternative print visualization has been used at Duke's Center for the Study of the Public Domain, where faculty have developed a comic to convey the complex issues of copyright of intellectual property in the digital world in a plain-English fashion. In *Bound by Law,* Aoki, Boyle and Jenkins (2006) translated abstract legal ideas into visual metaphors.

The public has become familiar with accessing Geographic Information Systems (GIS) data through a simple query interface using such applications as MapQuest (http://www.mapquest.com/). Travelers are now using this GIS application that resulted from software developed in response to Canadian land-inventory needs to plot optimum trip routings. Among the initiatives to increase youth's spatial literacy and competencies is My World GIS™ (http://www.myworldgis.org/about/). Through the visualization students see the patterns and trends hidden in the complex spatial data. The software is used to support inquiry-based learning; for example, on environmental issues. A Portland State University, Institute of Portland Metropolitan Studies (2003) project indicated that children and adults could use GIS technology to do simple but powerful GIS analyses. Spatial community mapping is being introduced through classroom projects (Knapp & Orton Family Foundation, 2003). Community mapping is a well-developed approach to community capacity building in participatory international community development projects. Increased awareness, if not use, of such software offers non–English-language minorities in particular a presentation format with which to counter 'sophisticated' narrative arguments. The language of visual presentation is universal.

The preceding section has outlined the solid foundation of media and ICT use in relation to formal and informal adult learning. I also introduced some next-generation multimedia possibilities, such as for example simulations, e-tutors and visualizations. The next section looks at information technology.

Information Technology

The management, processing and retrieval of information as data is the focus of information technology as a field. As used in this study, the information technology (IT) field, or informatics, is one of applied computer science. Huysman and Wulf (2004) observed that although the concept of social capital has become significant in many disciplines, it "has not gained comparable attention from scholars concerned with information technology (IT) in organizations or society at large" (p. 7). They viewed the limited interest of IT scholars in social capital as "perplexing in light of today's 'networked society'" (p. 8) and social capital as being "about the value derived from being a member of a society or community" (p. 1). The questions that they raised included: "Is social capital influenced when these connections are supported by IT, and if so, How? ... Moreover, can IT help us to better understand the level of social capital within a network or community?" (p. 8). Huysman and Wulf noted that

> while the notion of human capital formed the core premise of the first wave of knowledge management theories, social capital can be seen as crucial for the second wave. Human capital relates to individual knowledge, individual capabilities to act on this knowledge, and individual learning. (p. 5)

The second wave of knowledge management, in contrast to the first, is anticipated to take account of "people's motivation to share their knowledge and learn from other people's knowledge" (p. 6). In terms of research to date, Huysman and Wulf found that "in general, the relationship between IT and social capital seems to be an ambivalent one" (p. 8).

Stahl (2006) asked how a group builds its collective knowing. He focused on "how to increase opportunities for effective collaborative working, learning, and acting through innovative uses of computer technology" (p. 1) and observed that "collaboration of the future will be more complex than just chatting—verbally or electronically—with a friend" (p. 1). Stahl explored foundational issues in the construction of meaning at the small-group level rather than on practical design goals for computer-supported co-operative or collaborative work. His focus was on system design based on "empirically observable group processes of interaction and discourse" (p. 4), and his orientation to knowledge was through "discussion, debate, argumentation, and deep understanding" (p. 5). Although recognizing universal learning and sharing of knowledge as a distant dream, Stahl presented design projects that concentrate on "mechanisms to support group formation, multiple interpretive perspectives, and the negotiation of group knowledge" (p. 2). Such small-group processes are at the heart of learning, with or without technology.

Schein (2004) identified information technology (IT) in particular as "a powerful subculture based on technology and occupation" (p. 275). Moreover, he saw it as "built around a number of assumptions that conflict with other sub-cultural assumptions" (p. 275). Among the potentially conflicting IT assumptions that he identified were that more information is always better than less; technology leads, and people should adapt; and management will give up hierarchy if IT provides better coordination mechanisms. In contrast, operator and executive cultures often assume that too much connectivity produces information overload; technology should adapt to people and be user friendly; hierarchy is intrinsic to human systems and a necessary coordination mechanism, no matter how efficient networked communications are; and control of information is a necessary management tool and the only way of maintaining power and status (pp. 275-276). A comparable subculture tension in the home setting was that arising from the ham radio technoculture (see Haring, 2006). Ham radio enthusiasts, however, have always been as dedicated to the comprehension of the technology as they were to its application.

Nardi and O'Day (1999) observed that people seem to respond to new technologies as if they were "inevitable forces of nature rather than things we design and choose" (p. 14). They cautioned that "we must deliberately consider our technology choices and changes to our practices in light of our values" (p. 210). For information technologies in particular, they argued for a heightened awareness of our local surroundings and trade-offs between technologies and protection of already existing diverse local information ecologies. The ecology metaphor that they used to frame information context highlights shared characteristics with biological ecologies: "diversity, locality, system-wide interrelationships, keystone species, and co-evolution" (p. 211). As Shiva (2000) noted, a characteristic of non-Western societies is their diversity and pluralism. Their biodiversity of plants for food and medicine "have in turn given rise to a rich plurality of knowledge systems in agriculture and medicine" (p. vi). She posited that this diverse but equally valid knowledge plurality has been invalidated in its Western conversion. The pertinent aspect with regard to this study is pharmaceutical corporations' appropriation of that heritage medicinal knowledge through patents. ICT projects underway in India are now documenting this local heritage knowledge, at least in part to prevent further commercial appropriation of what the Indian population regards as a collective asset. The ecology metaphor underscores the potential and value of the cross fertilization of ideas across diverse social networks. The Indian experience highlights the contrasting potential of knowledge appropriation. It also reinforces the reality that individuals have increasingly become captive to processes of data collection by governments and businesses that leave no choice, either of technology or participation.

The preceding section outlined information technology from two perspectives. The first was knowledge management with its focus on control; and the second was the knowledge creation and replication of the social process. The tensions arising from data collection for control and extraction of knowledge were noted. The next section looks at adult learning and ICTs.

Adult Learning and ICTs

Selwyn, Gorard, and Furlong (2006) contended that "the 'information society,' 'knowledge economy' and 'lifelong learning' all coincide in, and are encapsulated by, the specific case of ICT-based adult learning" (p. 9). In an extensive empirical study in Britain, they looked at actual rather than potential uses of ICTs in adult learning. Their study involved a large-scale door-to-door survey, in-depth semistructured interviews with 100 participants, and further in-depth interviews and home-site visits. The study, which looked at the lived experiences of individual adults, included informal learners, individuals who were not participating in adult learning, and individuals who were not making use of ICTs. The design addressed tendencies to "conflate 'access to ICT' with 'use of ICT' and to assume that access to ICT inevitably leads to use" (p. 23). In considering ICT-based adult learning, the authors combined "questions of access and use of technology with the impact and consequences of engagement with information and communications technology for individuals" (p. 24). Selwyn et al. viewed loss of time for a social life as a 'participation' cost and noted that the lifestyle adjustment to taking a course "is more of a problem for those with dependants or in long-term relationships" (p. 26). They posited that whereas "ICTs can overcome situational and institutional barriers they can perhaps do less to alter the social complexities of people's lives and the 'fit' of education in these lives" (p. 28).

Selwyn et al. (2006) suggested that "formal education may not really be as practically important to many people as educationalists like to think" (p. 178). They found that for ICT-based learning, "as with more conventional forms of lifelong learning, what is needed is some reason for undertaking further training in the first place" (p. 138). They further proposed that work is a driving force in the domestication of new technologies. With regard to the computer, although most of their household survey sample had access, 48% could not recall having used a computer at all in the previous year. Selwyn et al. determined that

> use of computers remained a minority activity in the home when compared with the use of other technologies such as television, video/DVD, radio, hi-fi, and the mobile phone. Watching television and listening to the radio were the most popular technology uses among the sample with 93% watching television frequently (i.e. 'very' or 'fairly often'), and 81% listening frequently to the radio. (p. 84).

In their interview data, the authors noted that "a strong sense of ambivalence existed towards ICTs such as the computer—described by Dutton (2004) as being 'informed' but indifferent' towards technology" (p. 181). They expressed this as "simply having no need or no interest in using a computer" (p. 181). The authors contended that this may well be a reasoned explanation, which led them to suggest that "the notion of digital choice needs to be considered seriously" (p. 182).

Motivation is often viewed as central to nonparticipation and high dropout rates in adult learning programs. In 1993 Velázquez determined that a key reason for the nonparticipation of migrant adult agricultural workers in adult education programs in North Carolina was their view of schooling as meaningless to achieving a better future. Among illiterate Mayan adults in rural western Guatemala, Cutz and Chandler (2000) found that nonparticipation in literacy programs reflected an insider view that literacy is irrelevant. The participants saw the programs as "foreign and dangerous in both form and content and as offering little or nothing to pique the male Mayan's interest or further his motivation to become literate" (p. 72). These adults determined that the programs did "little to prepare or better adults as economic actors in the course of their daily activities" (p. 72). The adults in Velázquez's study also rejected schooling as incongruent with home lifestyle and values. Nevertheless, they valued learning and education. Those who attempted to get further education as adults did so to improve their economic situation through enhanced employability. The findings of Cutz and Chandler and Velázquez suggest that what might appear to be a lack of motivation could in reality be a reasoned judgment of the content or potential benefit in terms of time, effort, lost opportunity, and other costs required to participate. Some family literacy programs offer training that directly addresses these identified priorities of bettering economic or employability as part of their wider program.

In a study of family literacy programs offered in Tucson, Arizona, Moneyhun (1996) identified ideological and pedagogical tensions and contradictions at play. The program participants were primarily Hispanic, and many were new immigrants from Mexico. The programs "focus their efforts on raising the literacy levels of adult students, introducing children to preliterate school skills, and educating parents to foster school literacy in the home" (p. 105). The programs addressed parenting and job skills and provided students with opportunities for volunteer work at local schools. The students were introduced to general job skills using activities designed to help them to assess their marketability as workers and become familiar with the job-application process:

> One job specific skill that was emphasized was familiarity with a computer. The students, most of whom have never touched a computer, learned to do word processing, learned to use a database, and learned their way around a spreadsheet, in addition to playing many educational children's computer games with their children. At all five sites, computer instruction fell to the AmeriCorps workers, most of whom had just learned what they knew about computers within the last year. (p. 209).

Such instruction was intended to assist students in preparing for further education and work. Many of the participants in Moneyhun's study identified kinesthetic learning as their preferred mode. Many program participants had limited formal education, English language capability, and skills in the array of literacies required in the job market. Family income for many students was minimal, and survival presented daily challenges, yet "the students displayed astonishing tenacity and dedication" (p. 137).

In summary, adult motivations related to participation in formal 'schooling' are often pragmatic and take into account the perceptions of program content, skill relevance and form, and impact on social time. These factors also apply to the use of ICTs in relation to adult learning. Many adults are ambivalent with regard to formal course participation and/or using computers.

ICTs and Minority Access

Kerr (2004) integrated the issues important to sociologists, educators, and educational technologists in an overview of the sociology of educational technology. He identified as probably the central issue to both groups "cultural reproduction—the passing on to the next generation of values, skills, knowledge that are judged to be critical, and the improvement of the general condition of society" (p. 114). Consideration of the social effects of educational technologies would include those effects that relate, or potentially relate, to organizations, movements, or groups of individuals. As Kerr noted, "The issue of minority access to educational technology was not a central issue before the advent of computers in the early 1980s" (p. 126). Interest increased only with the introduction of computers into schools:

> Not only did the machines represent a higher level of capitalization of the educational enterprise than had formerly been the case, they also carried a heavier symbolic load than had earlier technologies being linked in the public mind with images of a better future, greater economic opportunity for children, and so forth. Each of these issues led to problems vis-à-vis minority access to computers. (p. 126)

In the mid 1990s "access to digital resources by members of typically disadvantaged groups became a more central social and political issue" (p. 127).

Kerr (2004) noted that two digital divides have been characterized as follows: "If the first divide is based on physical access to hardware and connectivity, then the second has more to do with how information itself is perceived, accessed, and used as a form of 'cultural capital'" (p. 127). He used as an example

> a child who comes from a family in which there is little value attached to finding correct information, ...and the family activity at mealtimes is more likely to involve watching television than engaging in challenging conversations based on information acquired or encountered during the day. (p. 128)

The process of finding and identifying 'correct information' is the focus of information initiatives in schools and in adult literacy programs. Kerr further noted that

> the physical presence of a computer in a school, home, or library, in other words, may be less significant to overcoming long-standing educational or social inequalities than the sets of assumptions, practices, and expectations within which work with that computer is located. (p. 128)

In this study the computer use that I examined was that at public-access sites, and this has implications for the study conclusions.

In addition, the focus of this study is on adults in the wider social context—not simply as parents of children in school—and on ICTs in the broader context—not simply as workplace training, but in the wider context of adult learning. In the context of this study there are also distinctions between the K-12 emphasis on minority access to computers, notions of information literacy, and information-seeking skills and intergenerational learning.

Summary

This section outlined the literature and key understandings of information communication technologies (ICTs) that informed this study and identified links to human and social capital. It also discussed the key literature on instructional technologies, information technologies, and adult learning and ICTs. The next section addresses the literature and understandings of human capital and the information society as they relate to the digital divide.

Policy Initiatives and the Digital Divide

Development in an Information Society

Information age is a term used to characterize this period of world history. The term recognizes the integral role of information flows to the workings of a connected world. Webster (1995) identified two divergent views of the period among social theorists while finding "little agreement about its major characteristics or its significance" (p. 2). In the first view, society has developed from an industrial to a markedly different information age. In the second, society reflects "'informatisation' of established relationships" (p. 4) but continues to develop following "long-established principles and practices" (p. 5). In this context, Castells (2000) characterized information technology as a strategic technology and a mode of development (for a European perspective see Ducatel, Webster, & Herrmann, 2000). Castells posited that where societies "put their technological potential" and their ability to master strategic technologies defines the "capacity of societies to transform themselves" (p. 7). Thus, at this historical juncture, both information and information technology have been identified as strategically decisive. With regard to this study, Lin's (2001) social capital model parallels the development framework in two key areas. The first is the key role of access to information and cyber-networks as key network resources; the second is the effects or outcomes that Lin identified as arising from network accessibility.

Development has been defined as growth, expansion, evolution, or modernization. The foundation of development economics rests on the work of such theorists as Adam Smith, John Stuart Mill, Schumpeter, and Marx. "In their analyses, they searched for patterns, causal relationships and laws of motion regarding societal conditions in the short-term perspective, as well as regarding growth and change over the long term" (Martinussen, 1997, p. 21). Common aspects that came to be accepted by most development theorists included the following:

- Schumpeter's basic distinction between development as economic growth and as a structural transformation process;
- industrialization as essential to wealth creation;
- large sectoral productivity differences together with un/under-employment;
- the state as an engine of growth and economic transformation. (pp. 50-51)

There were two prevalent views of the role of the state in the economy—capitalist or market vs. socialist or planned. Development theory was also influenced by the work of theorists such as Durkheim and Weber on social order, class, and structure. Development as modernization can be viewed as "cultural and socio-economic change, whereby developing societies acquire some of the characteristics of western industrialized societies" (Haviland, 1993, p. 420). This embodied a "very clear implication that not being like us is to be antiquated and obsolete" (p. 420). Thus, "in the course of modernization, traditional knowledge and techniques give way to the application of scientific knowledge and techniques borrowed mainly from the west" (pp. 420-21).

The World Bank has been at the center of international efforts to generate Third World development over the past half century. The Bank arose out of the postwar reconstruction experience in Europe under the Marshall Plan. It was in this context that John Maynard Keynes proposed the creation of the International Bank for Reconstruction and Development, which later became the World Bank and the International Monetary Fund. With the successful completion of European reconstruction, the attention of the institutions turned to financing growth in 'underdeveloped' economies. In 1975 The Bank published a collection of strategy papers that analyzed the causes of absolute poverty and program plans to help in its alleviation. The Bank's president, Robert McNamara, then launched a war on poverty by "extending the benefits of development to the poorest among those who seek a livelihood in the rural areas" (World Bank Group, 1975, p. 3). Programs to reduce rural poverty were to "be clearly designed to increase production and raise productivity" (p. 3). The rationale was that "the poor are not significantly contributing to growth.

Development strategies, therefore, need to be shaped in order *to help the poor to become more productive* [emphasis added]" (p. v).

In the 1975 war on poverty, access to agricultural credit, land reform, and more educational opportunities were identified as key elements to improve the situation of small rural farmers. Land holdings, however, were recognized as the power base of the elite. Rihani (2002) identified the IMF and World Bank adjustment and stabilization programs as the means by which "the leading powers seek to impose one common fitness landscape in which they are best equipped to occupy the summits" (p. 112). He observed that history confirms this game strategy as rational and effective. His example was the influence of the British East India Company, and later Dutch and Danish equivalents, over a period of two centuries in India. By imposing a unified system, these companies "wiped out all local diversity as being backward and unacceptable" (p. 111). As others have also noted, through the lending conditions attached to Bank development loans, efforts that might otherwise have been simply ineffective served to damage local economies and exacerbate poverty conditions (Altman, 2002). The Bank's approach must, however, also be viewed in historical context, see Chapter 5.

Sen's (2000) recasting of development theory provides the perspective appropriate to this study. Building on his extensive body of research, Sen framed development as freedom in contrast to simple economic growth or modernization. He found that "free and sustainable agency emerges as a major engine of development" (p. 4). And "not only is free agency itself a 'constitutive' part of development, it also contributes to the development of free agencies of other kinds" (p. 4). Rihani (2002) also identified freedom of choice as critical, along with abundant local diversity. He contended that development should be viewed as a process of complex adaptive systems rather than a linear view that presumes a high degree of predictability. Under self-organized complexity, the development process is recognized as uncertain and open ended as elements change in response to shifting conditions. Complexity thinking accepts development as "largely a messy and uncertain affair, driven in the main by millions of local actors" (p. 13). Gigler (2004), drawing on Sen's capability concept, examined the role of ICTs in promoting indigenous peoples' development in Peru. The question posed was "whether and under which conditions the improved access to information and knowledge facilitated by ICTs can enhance the individual and collective capabilities of the poor to better achieve the lifestyle they value" (p. 9). Gigler concluded that access to ICTs enhanced the capability to make self-directed strategic choices. Wade (2002) cautioned that support of ICT use may not deliver benefits proportional to the resources allocated and could initiate further dependency. ICT tools do not "leapfrog over the more familiar development problems" (p. 443). Leadership and policy implications arise from acceptance of development as processes of agent choice and self-organization. Rihani suggested that, within this framework, interventions would be "restricted to enabling interactions to proceed in a manner that produces self-organised stable patterns" (p. 9).

In terms of human capital, The Bank's rationale in 1975 was that more equal educational opportunities in rural areas "would enable the poor to become more productive and to participate more fully in the development process" (World Bank Group, 1975, p. v). The same theme of increasing workers' skills to achieve higher productivity is reflected in current program foci. The return continues to be framed as a growing economy. This economy in turn "provides government with funds that can be spent on education, health, and targeted programs, especially for the poor (World Bank, 2002). The economic growth and reward themes outlined in the international arena continue to be put forward by governments at all levels—national, regional, and local. They are further reinforced in media messages that continuously link technology—as the proxy term for *modern* or *advanced*—with elimination of poverty and achievement of the 'American dream' for every individual. This same rationale is suggested with regard to the need to 'educate' and thereby raise the productivity contribution of the Latino population in the US.

Rural infrastructure remains problematic, particularly in remote rural areas in the US (P. Bell, Reddy, & Rainie, 2004), Alberta (MacDonald, 2005), and Mexico (Hanson, 2004). In a review of infrastructure policy design to support rural job creation, W. Fox (1995) cautioned that public expenditures to deliver new technologies should be limited to those in which "a very strong case can be made to support subsidised service delivery" (p. 120), such as, for example, rural telephone service. Existence of a good transportation and telecommunication infrastructure can support job creation in rural areas. Successful outcomes, however, depend on the confluence of a wide range of factors; for example, in Bangalore (Lateef, 1997). The unexpected outcome in Costa Rica of Little Intelligent Communities (LINCOS), the world's first ICT project, was that "instead of aiding the poor, ... the project attracted the relatively rich. Its most avid users were some of the 1,500 coffee farmers in the region who came so they could market their products online" (Amighetti & Reader, 2003, ¶ 4). Granqvist (2005) assessed the LINCOS project in the Dominican Republic and found that the results suggested that, rather than contributing to community development, "the LINCOS' benefits are dependent on individual initiatives while also contributing mainly to the advance of individuals" (p. 32).

In a case study of the US Technology Literacy Challenge, Selfe (1999) examined the link between technology and literacy that has been forged "in print, television, and on-line media and thus in our country's collectively structured public imagination" (p. 4). She cautioned against what has been an uncritical acceptance of this cultural link on the part of "a citizenry that believes in the potential of high-tech literacy instruction to make lives better, to ensure progress and to provide a route to economic prosperity" (p. 9). She suggested that the link, like the narrative, reflects hopes rather than realities. Livingstone (1998) similarly observed that "human capital theory appears to have reached its limit as a rationale for increased social investment in education" (p. 170). He suggested that "the 'learning for earning' thesis is increasingly reduced to a strategy for relative individual advantage and decreasing marginal returns" (p. 170).

In the previous section I contrasted the stated objectives of The World Bank's war on poverty with the outcomes, and parallels were drawn with the rhetoric two decades later. Seeing this pattern raises cautions as The Bank and others shift the focus of the rationale from human capital to social capital. The Bank has found itself under criticism because the espoused benefits of earlier efforts did not materialize. Rather, there are more and more unemployed and underemployed who are educated as a result of investments in human capital. This is the case in Latin America (see Vilas, 1997) and in Canada, where "growing proportions of people who have invested many years of their lives in acquiring advanced formal education qualifications are unable to obtain commensurate jobs" (Livingstone, 1998, p. 169).

ICTs: A Global Target

The *digital divide* was an image that had captured public interest and was at the forefront of policy debates when this study was framed (Benton Foundation, 1998; Norris, 2001; US Dept. of Commerce, 1999; Wresch, 1996).

A United Nations Millennium Project (2006) target in support of a global partnership for development was to "make available the benefits of new technologies—especially information and communications technologies" (p. 2). This specific target meshed with regional and national telecommunications policies designed to assure the necessary information and communication technology (ICT) infrastructure for citizens to participate in the global knowledge economy. These objectives are promoted on the premise that the information economy is the new environmentally friendly engine of economic growth and prosperity. In Canada, the US, and Mexico, programs were initiated to broaden access to the Internet across the population through national digital community center initiatives: (a) Community Access Program (Canada; http://www.cap.ic.gc.ca/index.html), (b) Community Technology Centers ([CTCs] United States; http://www.ed.gov/offices/OVAE/AdultEd/CTC), and (c) Internet en mi Biblioteca (Mexico; http://www.cnca.gob.mx/cnca/nuevo/diarias/090999/internet.html).

Bertot and McClure (1998, 1999) had identified community-access points as one of four critical variables related to establishing equitable access to information services. From a public-policy perspective, the recognized role of public libraries in providing free and open access to information resources underlies their inclusion in the programs. However, based on the poverty level of library users as identified in their 1998 survey, Bertot and McClure (1999) further noted that "the data suggest that since there are very few public library outlets in poverty areas, it is unlikely that public libraries will significantly improve the poor's access to and use of the Internet" (p. 294). Jue, Koontz, Magpantay, Lance and Seidel (1999) also carried out a national study to assess the locations of poverty areas relative to public library outlets using US census and geocoding data. Their results showed that "although public libraries are distributed fairly equitably, there is a noticeable under representation of library outlets in extreme poverty areas" (p. 318). Moreover, as McClure, Ryan, and Bertot (2002) noted, small rural public libraries were among the weakest links in the diffusion of public library Internet services. They elaborated that "the problem is lack of staff in these libraries not the quality of the staff" (p. 104). Thus, it is recognized that, in general, the programs and locations of libraries privilege urban and more affluent areas. For the poor as clients, however, "librarians have learned that their users value the institution because it is not a school, users are not tested, indeed some of their users avoid schools" (p. 70).

The PEW Internet and American Life Project monitored the overall increase in Internet use and changes in the demographics of users on an ongoing basis. Between 2000, the date of their initial data, and 2004, the number of American adults logging on to the Internet on a typical day increased by 37%—from 52 million to 70 million. Among those aged 12 to 17, the rate of increase was 81%.

> The Web has become the "new normal" in the American way of life; those who don't go online constitute an ever-shrinking minority. And as the online population has grown rapidly, its composition has changed rapidly. ... More minority families joined the party, and more people with modest levels of income and education came online. (Pew Research Center, 2005, p. 59)

Many early divides narrowed or disappeared (Horrigan & Rainie, 2002; Lenhart, 2003). Rural access continued to lag due in part to the lack of high-speed lines and an older population (P. Bell et al., 2004; S. Fox, 2004). Users continued to reflect stratification, particularly by age, but also by income and education level.

Use among various groups, however, continues to evolve in different ways in response to experience, maturing of the Internet, and new features such as blogs and the information flows arising from such features as RSS feeds. Thus, although the Internet is becoming mainstream, its evolution also continues along with that of other ICTs (Howard, Rainie, & Jones, 2001; Pew Research Center, 2005; Spooner, 2001). As Rheingold (1993, 2002) found in looking at changes over the first decade, we are on rapidly shifting ground. He looked at how Asian youth were using cell phones and saw, not adaptation, but rather new innovative social networking that made use of the new capabilities of the technology, such as instant messaging (IM). As a personal technology, however, "even as Internet use has grown exponentially, the hierarchy of metaphors that describe it has remained constant. The internet is most of all a mail pigeon, then a library, then an amusement park, then a shopping center" (Pew Research Center, 2005b, p. 63).

ICTs and Social Networking

Over the period of this study the significance of interpersonal communication remains central to discussions of the role of the Internet in relation to social networks. Lin (2001) raised the question of "the extent to which individuals are spending time and effort engaging others over cyber-networks, compared to the use of time and effort for interpersonal communications, other leisure activities" (p. 216). In looking at current trends with respect to informal social connections, Halpern (2005) noted that although time-budget studies confirm that in America social activities of choice are shifting from formal to informal, the general trend is that less time overall is being spent on socializing. He noted an exception in

> the use of telecommunications to stay in touch. In 1998, two-thirds of adults had called a friend or relative on the telephone in the previous day 'just to talk' (Pew Research Center, 1998). ... This is particularly so for links to distant friends and relatives, as reflected in the growth of distant calls compared with local calls over the last three decades. (p. 207)

Because one does not meet new people by telephone, the importance of the medium is in "maintaining rather than making social capital" (p. 207). Halpern further noted that "an important related question, which it is too early to answer either for the USA or more generally at present, is what role new forms of electronic communication will play in future trends" (p. 207).

As part of a body of research looking at how rising Internet use affects social capital, Quan-Haase and Wellman (2004) suggested that the Internet has transformed social contact, which they defined as "interpersonal communication patterns, including visits, encounters, phone calls, and social events" (p. 113). Moreover, these transformations as they relate to the expression of community are related to the development and use of technologies. Boase and Wellman (2006) posited that the interpersonal communication use patterns related to the Internet have evolved as part of a shift to the *networked individualism* that was emerging prior to the Internet. The shift is both reflected and facilitated by Internet communication patterns. Wellman and Kennedy (2007) further suggested that household families increasingly operate as loosely knit groups in which family members co-ordinate their separate activities. Wellman's body of research also suggests that individuals form online social networks that are an extension of their interpersonal networks.

Information, ICTs, and Minorities

Mossberger, Tolbert, and Stansbury (2003) examined ICT experiences in low-income and minority communities to highlight the factors underlying the general trends of significance to this population segment. They noted that, with regard to federal programs such as CTC and Technologies Opportunity Program (TOP), "clashes over federal policy revolve around two issues: whether disparities will disappear of their own accord, in light of the rapid diffusion of the Internet, and whether government intervention is appropriate, regardless of continued inequities" (p. 4). See Sassi (2005) for a comparison of recent digital divide debates and those around the mass media diffusion gap of the 1970s. Mossberger et al. undertook a national survey in which they drew one sample from high-poverty areas and another from the general population. Their survey questions framed the digital divide as "an access divide, a skills divide, an economic opportunity divide and a democratic divide" (p. 2). Their questions specifically addressed differences in attitude toward the use of public-access computers. The authors recognized that libraries and community technology centers are often the primary sites where the disadvantaged have ongoing access to computers and computer training. Mossberger et al. used multivariate analysis to identify those factors that show statistically significant differences between low-income and/or minority experience and attitudes and those of the wider population. Some of the attitudes and differences they found are particularly pertinent to this study.

Mossberger et al. (2003) found that, in terms of the willingness to use public-access sites, public libraries were the most popular public-access site at 93%:

> Individuals who expressed the most willingness to use public access sites were more affluent, better educated, and African American. ... Unfortunately, however, the low-income and less-educated individuals for whom public access is intended are least likely to be willing to use public access sites. (p. 50)

They also found that those who are more likely to see libraries as community gathering places are the poor, women, Latinos, and African Americans. In terms of the economic opportunity divide, "more than two-thirds of Americans are convinced that a connection exists between computer skills and various types of economic opportunity" (p. 79). The disadvantaged are more likely to feel this way, and "Latinos are even more likely than other racial and ethnic groups to believe that using the Internet is necessary to keep up with the times" (p. 80). The authors interpreted this to suggest that "the policy problem is the inequitable distribution of opportunities for access and skills development rather than awareness of technology and its potential benefits" (p. 80).

Mossberger et al. (2003) found computer skills linked to economic opportunity in several ways. Respondents considered learning new computer skills as important for career advancement, to get a job, to get a higher-paying job, and to start a small business. It was interesting that although 70% of the respondents "agreed with the statement 'You need to learn new computer skills to get a job,' only 6.5 percent reported having been denied a job because they needed more computer skills" (p. 68). It was the young who thought that "you need more computer skills to get ahead" (p. 69). Income level was not a significant factor in the attitudes to the importance of computer skills and willingness to search online for job and career information. A majority of those surveyed felt comfortable searching or applying for a job online. When asked whether they would use a computer in a public place to do this, "the same proportion—64 percent—was willing" (p. 73). The authors found higher African American interest in using the Internet for job activity and suggested that this could be "because they lack the informal networks that often serve as referral systems for job seekers" (p. 75).

Elliott (1986) examined ethnic self-help organizations in London, England, to understand the information needs of ethnic minorities and how these needs are met. The organizations he examined were voluntary, self-run, and controlled and/or funded by the ethnic group. Although the self-help organizations provided a range of services, the most prominent was advice and information—a service that 92% of the organizations provided. The self-help organizations often made referrals to established agencies, but "very few members of ethnic minority groups, particularly the elderly, women and youngsters, could have done without this first step" (p. 20). This initial contact was in a context in which the advisers understood the language and the cultural and religious norms. Indeed, in many cases members were "not only referred to but taken to the agencies and given help with interpreting" (p. 20). Moreover,

> translation was often not a straight forward job, but explanations of the terms were required, also the relevant actions to be taken had to be explained to the clients. In some cases the follow-up work of one case could take up to one and a half years. (p. 31)

In offering a model for cooperation between libraries and self-help groups, Elliott recognized that "the survival of self-help institutions ... set up by ethnic minority groups is not dependent on any intervention, whether co-operative or help, from public libraries or any other organisation for that matter" (p. 61).

Latinos: Informing, Learning, and Libraries

Metoyer-Duran (1993) found that although ethnolinguistic gatekeepers viewed the library positively, they made limited use of it as an information resource. She found that the lack of library use among gatekeepers was due, at least in part, to "the assumption that the library did not have the type of information gatekeepers require for themselves and their communities" (p. 90). The Latino gatekeepers in her study were the most likely to have visited the library and to "have the most positive perception of the public library" (p. 89). She found that "all of the gatekeepers who visited the library, especially the Japanese, tended to do so because of their children's information needs" (p. 89).

Koontz, Jue, and Lance (2005) developed a methodology to ascertain in-library use measurements specific to libraries serving primarily minority and/or white low income users. They found that, as compared to the 'average library user', the average user in a predominantly Hispanic branch reflected a higher level of reading, writing and tutoring activity. Circulation levels, however, were lower. In rural Missouri, Bala and Adkins (2004) conducted a door-to-door survey among residents who lived within a 10-minute radius of a local public library. Almost all of the respondents were Latino, and 78% had not visited the library in the past six months. Their reasons for not visiting the library included language barriers, conflicting work hours, and a lack of need. The most frequent reason for visiting the library was to use the computers. Only 20% of the respondents were employed year round.

Sarling and Van Tassel (1999) conducted a community analysis to identify design and service implications for a library that served a low-income Latino area of Denver. The area was 70% Latino, with more than two thirds of that group were of Mexican origin, and one third of the families lived in poverty. Over the 1990s there had been a significant influx of Mexican newcomers. The authors recommended that exterior spaces be set up that would "enable new immigrants, unfamiliar with public libraries and suspicious of governmental agencies, opportunities to observe from a safe distance and become comfortable with the library" (p. 21) and that both exterior and interior signage be bilingual. They stressed active staff involvement in the community so that the library would become recognized as a community partner. They also recommended that staff be drawn from the community to "set the library apart from other businesses and agencies that are viewed as threatening" (p. 22) and to facilitate inclusion in the "word-of-mouth" network that "was the primary form of communication throughout the community" (p. 20).

Sarling and Van Tassel (1999) recommended inclusion of the following library materials for adults: (a) English materials, Spanish materials, and much that was bilingual to help those who were attempting to learn the other language; (b) subject areas such as gardening, auto repair, karate, weightlifting, and 'do-it-yourself' books; (c) a large video collection; and (d) material related to popular culture, particularly Hispanic. They also recommended that the library interior include (a) several quiet spaces for children to do homework, (b) an area where families could come together, and (c) areas that provide access to computers. Their data also indicated that, "unlike many libraries where adults want space separated from the children's area, this branch should have a common area that allows parents and children to learn from each other" (p. 21).

Summary

This section framed an historical perspective of ICTs as information channels and introduced related sociological and technological perspectives of social capital, social networks, and ICTs. The section introduced key literature that addressed the digital divide and minorities, immigrants' information needs and Latinos' use of libraries. The next section outlines information culture as a dimension of organizational leadership and change in the information age.

Leadership: Information and Agency

This section introduces three leadership perspectives of organizational culture: (a) hierarchical with managed change, (b) distributed with disciplined change and (c) kinship based entrepreneurial change that represent three distinct cultures or environments for information sharing and informal learning. The construct of culture is used to frame parallel perspectives on leadership and agency, with leadership being an aggregate or collective perspective and agency an individual perspective.

Leadership and Organizational Culture

Addressing leadership and the change dynamic, Schein (2004) observed that "in a rapidly changing world, the learning leader/founder must not only have vision, but also be able to both impose it and to evolve it further as external circumstances change" (p. 407). He suggested that as groups develop, and particularly when things do not work as they should, the leader "must provide temporary stability and emotional reassurance while the answer is being worked out. This anxiety-containing function is especially relevant during periods of learning, when old habits and ways must be given up before new ones are learned" (p. 407). It was in this context that Schein saw the utility of the concept of culture and its role in the formation of groups that move toward patterning and integration to meet the human need for stability, consistency, and meaning. He defined culture as

> a pattern of shared basic assumptions that was learned by a group as it solved its problems of external adaptation and internal integration, that has worked well enough to be considered valid and, therefore, to be taught to new members as the correct way to perceive, think, and feel in relation to those problems. (p. 17)

Elaborating on this, Schein noted that "any social unit that has some kind of shared history will have evolved a culture" (p. 11). The strength of that culture, however, is "dependent on the length of its existence, the stability of the group's membership, and the emotional intensity of the actual historical experiences they have shared" (p. 11).

For Schein (2004), culture and leadership were two sides of the same coin in that leaders create cultures when they create groups and organizations. He saw the unique function of leadership as the ability "to be able to perceive the functional and dysfunctional elements of the existing culture and to manage cultural evolution and change in such a way that the group can survive in a changing environment" (pp. 22-23). Schein observed that the leader must "believe that the world is intrinsically complex, nonlinear, interconnected, and over-determined in the sense that most things are multiply caused" (p. 402). In relation to the change cycle, he identified four organizational life stages: creation, midlife, maturity, and decline.

Collins (2001) recognized change as an external given and carried out an extensive empirical study to examine leadership and organizational sustainability. He examined public corporations because they provide a plethora of readily available data and widely agreed upon definitions of success. The search was intended to uncover essential and distinguishing factors at work. Some of the companies in their study had faced unprecedented rates of change—for example, the banking industry as a result of deregulation. Among Collins's key findings were the importance of (a) leadership of a particular type, (b) a culture of discipline, and (c) different thinking about the role of technology. In terms of a culture of discipline, they concluded that

> when you have disciplined people, you don't need hierarchy. When you have disciplined thought, you don't need bureaucracy. When you have disciplined action, you don't need excessive controls. When you combine a culture of discipline with an ethic of entrepreneurship, you get the magical alchemy of great performance. (p. 13).

In terms of technology, Collins found that, although great companies may well be pioneers in the application of carefully selected technologies, technology itself does not ignite transformation, nor is it a primary, root cause of decline or greatness. Among organizational leaders able to sustain greatness, a core characteristic is their ability to "set up their successors for even greater success in the next generation" (p. 39). The leadership role involves envisaging strategic goals centered on the core value-added capability of the organization and charting an adaptive path to attainment. Collins identified an organizational culture of discipline and an entrepreneurial ethic as key to sustained performance.

Granovetter (1995) described entrepreneurial areas as offering entry advantage to immigrant or ethnic groups, particularly those with low barriers to entry or in which trust is more important than technical knowledge. They often represent areas with "no margin for error" (p. 155). He foresaw in the economy an ongoing and

> surprisingly large role for the supposedly archaic categories of ethnicity and kinship; the idea that these are superseded in the economy of the modern world by efficient and impersonal institutions is a wishful vestige of Enlightenment idealism that careful analysis does not sustain. (p. 157)

Granovetter noted that the existence of *firms* as relationships assembled into organized combinations of economic activity was "taken as a signal of 'modernization' ... from the 1940s through the 1970s" (p. 128). The shift from economic relations embedded in noneconomic relations, such as in the extended family, was viewed as "leading to greater efficiency in an environment that required economic activity to be detached from the non-economic demands of family and friends" (p. 129). Firms organized along kinship and family lines were considered "fundamentally backward" (p. 129). The 1970s saw "a reinterpretation that transformed it from a retrograde vestige of traditional times to a clever solution for difficult problems" (p. 130).

Granovetter (1995) argued that "the social ties of immigrant, ethnic, and other bounded communities can, under specified conditions, furnish the resources necessary for firms to prosper in a modern setting" (p. 130). Hoffman, Hoelscher, and Sorenson

(2006) identified information channels and family norms based on family relations built over time as the key dimensions of a family business. They posited that this can result in levels of communication and cooperation and thus provide a competitive advantage. Coleman (1988) identified these advantages in his study of the Hasidic Jewish diamond market, where information flowed freely and transactions were carried out without the need for formalized contracts or insurance. In such closed communities, family or relational norms provided the advantage and the enforcement mechanism. As Portes (1995) cautioned, social or relational structures can be supportive of entrepreneurial innovation and in other settings foster conformity and the status quo. All of these researchers shared a view of information or knowledge as a key resource and the family as a particular relational connection in which facilitation of information flows and cooperation can offer advantages. Lin (2001) similarly recognized individual choice or agency as operating under structural and relational constraints.

In terms of information flows, McPherson, Smith-Lovin, and Cook (2001) noted that network ties of every type are structured by the homophily principle, whereby "contact between similar people occurs at a higher rate than among dissimilar people. ... [and] material information that flows through networks will tend to be localized" (p. 416). Heterophily theory "makes predictions concerning how actor's ties outside closed social circles can access diverse knowledge and other resources" (Kilduff & Tsai, 2003, p. 37). Similarly, Burt (2005) noted that "information is more homogeneous within groups such that people who bridge the holes between groups are at greater risk of having creative ideas and are likely to see a way to implement ideas" (p. 7). Burt saw this as "associated with competitive advantage in a social order of continuous disequilibrium" (p. 8). Frazer (1999) distinguished community as an entity or place from the relational use whereby individuals are in and of the community. As a relational term, community is a set of social and moral ties that inhere between members and reflect a commitment to the whole. It is in this commitment to the whole that overrides individual interests that collective social fabric centers. The organizational structures introduced are comparable to the construct of community as a shared or collective identity and provide three lenses through which to consider information flows and learning in relation to Lin's (2001) social capital model. Schein's (2004) notions of agency and culture operate across all three structures: culture guides and constrains member behaviour through shared norms, and his notion of culture is analytically comparable to Lin's notion of social networks in looking at information flows.

Schein (2004) also recognized culture as "a dynamic phenomenon that surrounds us at all times, being constantly enacted and created by our interactions with others" (p. 1). Wright (1994) identified the notions of culture as a fixed and bounded entity operating under centralized command as the old view which contrasts with the new view reflected in flexibly networked, self-motivated and team forming organizational behavior. Kilduff and Tsai (2003) similarly noted that the old paradigm of network research took the network as a fixed entity—a social fact. With regard to cyber-networks, Lin asked "What are the social mechanisms that credit and enforce the compliance of individual actors and organizations with institutional rituals and behaviors"? (p. 185); or, as Kilduff and Tsai framed it "trust-based governance systems that substitute for formal legal ties in and between organizations" (p. 129). In reality, the three organizational structures introduced encompass structural and relational layers embedded within formal and informal layers, as do communities and cyber-networks.

Adaptive Learning and Leadership Development

Schein (2004) identified a managed culture of adaptive learning as key to group survival. He identified 10 characteristics of a learning culture. Those pertinent to this study are (a) situations of increased complexity prompt pro-activity, (b) "the *process* of learning must ultimately be made part of the culture, not just the solution to any given problem" (p. 395), and (c) "communication and information are central to organizational well-being" (p. 400). All of these aspects are embodied in informal or experiential learning.

Velázquez (1993) found that migrant adults who worked in agriculture did not equate learning with school, but rather with informal or experiential learning. They "expressed pride in learning on their own, during and after leaving school" (p. 122). As Livingstone (1999) observed, informal learning is "usually ignored, unrecognized, or taken for granted as simply day-to-day getting by" (p. 50). Selwyn et al. (2006) also affirmed that this is the case even though, "as Tough (1978) contended, informal learning is the submerged bulk of the iceberg of adult learning both in terms of its visibility and significance" (p. 8). In response to questions about informal learning sustained for at least a year, Selwyn et al. found "substantial numbers of apparent 'non-participants' in formal learning who reported sustained interest in informal study" (p. 71). Selwyn et al. used the European Commission's (2001) definition of informal learning as

> learning resulting from daily life activities, related to work, family or leisure. It is not structured (in terms of learning objectives, learning time or learning support) and typically does not lead to certification. Information learning may be intentional but in most cases it is non-intentional (or 'incidental'). (p. 32)

Livingstone (1999) outlined profiles of basic patterns of explicit informal learning derived from the first Canadian survey of informal adult-learning practices. The survey questions built on the "Tough (1971) and Penland (1977) interview schedules" (p. 60) and framed four informal learning categories: employment, community volunteer work, household work, and general interest. The learning activities identified as most important in the respective areas were computer skills for employment, communication skills for volunteer work, home renovations, and cooking skills for household work, and general interest learning around health issues. Livingstone acknowledged that "the much larger sea of tacit adult learning remains unfathomed" (p. 70).

Livingstone (1999) concluded that adult informal learning remains extensive and that little of this active learning is achieved through formal courses. The study identified a gap, however, between current and desired participation in further education courses that was "very large for working class people and virtually non-existent for more affluent class groups" (pp. 67-68). Livingstone also found that "the incidence of informal learning among wageworkers and the unemployed is at least as great as among more affluent and highly schooled classes" (p. 67) and suggested a pent-up demand for courses. In contrast, Beard and Wilson (2006) noted that a mindset that attending a course is the only way to learn flows from the relatively recent shift to institutionalized learning. They posited that "this mindset needs to be discouraged because deep and permanent learning is often more likely to occur in the workplace or the home rather than in formalized situations" (p. 251).

Monkman's (1997a, 1997b, 1999) studies of workplace learning among Spanish-speaking adults in California and Morelos, Mexico, have highlighted the relationship between learning and social-network dynamics. She identified social networks as integral to learning; indeed, she found that informal learning via the networks is at the core of the learning processes. In a study of working-class adults who were learning to use computers in the Canadian workplace, Sawchuk (2003) came to a similar conclusion. He identified informal working-class learning networks at play and aspects of their operation. The study revealed the significance of the link between the social network and informal learning. Sawchuk also found "an enormous surplus of knowledge production capacity among working-class people" (p. 227). Such learning cohorts are part of the organizational subgroup diversity and learning culture that Schein (2004) identified.

Schein (2004) emphasized the importance of having organizational subgroups and individuals with diverse operational specializations. He saw the resulting diversity of subcultures as "a necessary resource for learning and innovation" (p. 401). The importance of these various competencies and their weblike functionality is consonant with a social model that, as Dudley (1993) noted,

> has been described by sociologists as 'a web of competencies' (Berger et al. 1974: 46). In stable societies, the locations and limits of skills and responsibilities are clear. One knows who to turn to with any given type of problem and what categories of action to expect from different people. (p. 39)

Moreover, as Dudley found in international development work, "the advantage of using existing skills lies not simply in the use of those skills but in the opportunity to exploit the complex network of existing and understood relationships within the rest of the community" (p. 41). Recognizing that even within a strong overall culture strong subcultures can develop, Schein saw the need for higher-order coordination "because it is in the nature of subgroups and subcultures to protect their own interests" (p. 401). As in community development, however, self-organization within and across groups is essential to leadership development.

In 1965 Biddle and Biddle identified community development as "a social process by which human beings can become more competent to live with and gain some control over local aspects of a frustrating and changing world" (p. 78). What they saw as the critical outcome of a community development process was that participation in the process

> makes available to people the experiences that create the social skills needed to deal with each other, with neighbors, with experts, and with the powers that be. Some of these skills include the ability to discuss without rancor or recrimination a controversial proposal, the ability to cooperate and to take satisfaction in cooperation more than in conflict, and the disposition to accept a problem as a

> challenge and as an opportunity rather than as a fearful thing to be avoided. (pp. 251-252).

Biddle and Biddle argued that the results, whether buildings or activities, are simply "external evidences of processes occurring within people's lives" (p. 78). They saw community development as involving "cooperative study, group decisions, collective action, and joint evaluation that leads to continuing action" (p. 78). Although they called for macro programs to provide effective solutions to distressed areas, the authors identified local micro process as the crucial element of success. They looked at self-chosen change in which the process of development is participative and centered on small groups, which allows for attention to individual growth. The social skill building process that Biddle and Biddle identified and its inherent micro politics can also be seen, for example, in organizations, groups, or families.

Warren (2001) looked at Latino community leadership as demonstrated in Ernesto Cortés's creation of Communities Organized for Public Service (COPS). As a result of extensive community work, Cortés recognized that social activists focus on a cause or an ideology rather than on the common good, whereas those who learn to work cooperatively as part of a community within parish-based organizations have an entirely different focus:

> Instead, they were connected to parishes and rooted in the dense networks of extended families and friends that constituted San Antonio's Hispanic neighborhoods. ... As Cortes noted later, "we tried to bust the stereotypes, ... We wanted to see leaders as people who have networks, relationships with other people." (p. 50)

Thus, similarly to Biddle and Biddle's (1965) findings, Warren found that skill building at the parish level within the Catholic Church is a fertile training ground for the development of leadership skills, as indeed are venues such as the ladies' aid and parent-teacher associations and learning cohorts.

The Wildflowers Institute, building on Schein's framework, has developed a process of leadership development and community building. The Wildflowers Institute (2007) "works with communities to strengthen their collective 'will' and to help build a strong sense of identity and meaningful self-organized activities so that young people, families, and networks can achieve many of their personal, social, and cultural aspirations" (¶ 1). The process of developing leadership from within each group involves examining deeply held cultural values to identify those core to the community cultural identify and those that, in the interests of a wider shared objective, can be adapted. This examination technique is an analytic parallel to the process of factor definition in agent-based modeling and simulation (ABMS). This process is applicable to communities and organizations when both are viewed as multi-agent complex adaptive systems. What is key and pertinent to this study is the role of self-organized activities.

Trust and Information/Communication Flows

Schein (2004) identified as essential to the information culture of an organization recognition of the centrality of communication and information. He saw this as requiring multichannel communication that allows everyone to connect with everyone else. Only accurate and relevant information, however, is to flow freely. He noted the difficulty in trying to create lateral information flows even when everyone agrees that such lateral communication would stimulate innovation and be beneficial

Such social networks can be described in terms of nodes and links. Nodes represent actors, units, or groups; and links are the relational connection between the nodes. Various classifications of nodes or ties have been developed. In traditional network analysis two types of measures have been used as trust indicators: social distance and equivalence, such as, for example, the number of shared nodes. Sophisticated visual presentations of information diffusion patterns reveal engaging patterns of connection that highlight centers of density and linkages and are used to identify opinion leaders and trend setters for marketing purposes. Network analysis also addresses the question of who you know, which can be as important as what you know.

Borgatti and Cross (2003) empirically tested four relational characteristics that might predict the probability of someone's seeking information from another person. Among professionals within two organizational settings, their results identified three factors as predictive of situational information seeking: "knowing what another person knows; valuing what that other person knows in relation to one's work; and being able to gain timely access to that person's thinking" (p. 440). Recognizing trust as central to both interpersonal and commercial relationships, McKnight and Chervany (2002) developed an interdisciplinary topology of trust spanning personal, institutional, and virtual transactions. As they noted, definitions of trust arise from different perspectives: "Psychologists see trust as a personal trait, sociologists see it as a social structure, and economists see it as an economic-choice mechanism" (p. 37). In their interdisciplinary model they differentiated between dispositional trust, or trust in general others (psychology, economics); institutional trust, or trust in situation or structures (sociology); and interpersonal trust, or trust in specific others (social psychology, economics). These in turn underlie trust-related behaviors such as information sharing. Trust in individuals as an information source was central to Metoyer-Duran's (1993) information gatekeeper model. She developed a set of eight profiles based on that model that represent "a graduated progression from gatekeepers who inhibit the flow of information (impeder) to those who serve intentionally as change agents (leader/executive)" (p. 32).

Stephenson's (1998, 2005) approach to network analysis centers on identification of the nodes that represent trusted information sources within the informal networks of organizations. She identified three types of nodes: hubs, pulse takers, and gatekeepers. Hubs are highly connected and act as gathering and sharing points. Pulse takers selectively cultivate higher level connections to monitor strategic information. Gatekeepers channel contacts and information flows within their group. The nodes are in turn situated within the knowledge networks that are integral to organizational change. Stephenson identified six core layers of knowledge within any culture, each of which has its own informal network of people exchanging conversations: work, social, innovation, expert, career, and strategic and learning. These nodes control the idea flows, and in her analyses Stephenson seeks to uncover the links that they create as revealing the 'network of human trust' within an organization. Her analysis is based on personal interviews in which employees identified whom they trusted in their informal internal network to provide context-specific information. Within these networks of trust, she has found that information sharing reinforces group cohesion. Individuals might function in different nodal roles at different times and in different networks. Thus a hub in one network may be a gatekeeper in another. Moreover, social networks are always in motion. Indeed, Stephenson refers to her social network maps as simply an X-ray—a picture at a point in time.

Job Referrals: A Key Relational Asset

Ordóñez de Pablos (2005) identified a growing interest among professional firms in increasing their relational capital to gain competitive advantage. She conducted an empirical study that involved Danish, Indian, Spanish, and Swedish firms that are pioneering the measurement and reporting of social connections. She found the Chinese construct of *guanxi* to be analytically comparable to the Western usage of social capital. Instrumental ties under *guanxi* are regarded as unstable and short term. A basic condition of trust along with continuing social interaction and mutual help have been identified as requisites in the building and maintenance of substantive ties. Most managers in Ordóñez de Pablos's study identified the primary direct benefit of *guanxi* and social capital as information. The managers perceived this information as having positively influenced both their promotion and compensation. They noted that in the hiring process, social ties are important in terms of providing information on potential hires.

In a study of Mexican immigrant social networks in Oklahoma, C. Garcia (2005) identified three interconnected but distinct subnetworks that in that location could be framed as contract, traditional, and church. These network connections are fundamental to local employment opportunities. The contract subnetwork, which centered on a local meatpacking plant, revealed "no real connection between network members other than working at the same location and having arrived in the community under similar circumstances" (p. 10). The traditional network centered on family and friends who are not only "sources for information about jobs but also serve as references" (p. 11). Such referrals are extremely important for several reasons. An employer at a restaurant, for example, could expect that "if employees were bringing in other workers, they would be aware not only of the job tasks but also of the expectations associated with employment at the restaurant" (p. 11). Garcia found that "because employment referrals involved vouching for the prospective employee, issues of character and work ethic were also considered" (p. 15). As one of his informants noted, "You don't create trouble for yourself by recommending someone you don't know well" (p. 16). He found that community members "are so committed to passing on information to their compatriots that an expectation has arisen in the community that if help could be given, it should be" (p. 19). As Garcia's findings indicated, what the community social network provides in relation to jobs goes beyond information and even beyond the sharing of tacit knowledge.

V. Garcia and Marínez (2005) examined the extent to which Latino blueberry farmers in Michigan have used their social network and USDA programs to assist them in starting and sustaining their operations. Primarily Tejano and Michoacán Latinos, few of the farmers were landowners prior to the 1980s. Only those who had been farming for a decade or more were even aware of the USDA programs. Network membership was informal and fluid and included individuals who lived in Mexico. The study found that "key resources, such as money and land, stay within the inner circle. ... They are seldom made available to individuals in the outer group" (p. 14). Moreover, key resources are "managed so that they will not be depleted" (p. 14). Garcia and Marínez also identified information, labor sharing, loans or financial assistance, farming resources, and mutual assistance as key resources. One family network built over three generations is interconnected with the wider farming and local business community. Family members share "information, such as knowledge of USDA programs and advice about growing blueberries, with non-family members" (p. 21).

The entrepreneurial equivalent to job referrals, contacts, and tacit knowledge in the entrepreneurial sphere is asset information, contacts, and operational expertise.

Agency: Individual and Relational

As Schein (2004) observed, within groups we see how "culture is created, embedded, evolved and ultimately manipulated, and, at the same time, how culture constrains, stabilizes, and provides structure and meaning to the group members" (p. 1). He framed both a group and an individual perspective on culture that parallels the aggregate and individualized possibilities inherent in Lin's (2001) social capital model. Schein suggested that a deep understanding of cultural dynamics contributes to an understanding of self and "the forces acting within us that define who we are, that reflect the groups with which we identify and to which we want to belong" (p. 11). He observed that "one can view personality and character as the accumulation of cultural learning that an individual has experienced in the family, the peer group, the school, the community and the occupation. In this sense, culture is within us as individuals" (p. 8). At the same time, he recognized that culture is not static but, rather, "constantly evolving as we join and create new groups that eventually create new cultures" (p. 8). Thus, for individuals and groups there is an ongoing interplay of multiple identities or subcultures that come to the fore at the time of change. Newcomers who are adjusting to the impacts of relocation and cultural uprooting experience the same tensions.

Monkman (1999) observed that "migration is a life-altering experience in the lives of many adults and children in the world today" (p. 367). In this context the interplay of cultural identities is part of a comparable process of acculturation to achieve "a dynamic balance between two cultures that implies a selected mix of first culture attributes and second culture attributes" (Wallis, Paich, & Borshchev, 2004, p. 2). This definition recognizes that, with any population subgroup, the "level of acculturation to the broader population of which it is a part dynamically varies according to individual choice" (p. 2). As Monkman also observed, the impact of migration is often unacknowledged in education "beyond recognizing changing demographics and narrowly-defined educational needs related to language and job skills (p. 367). For adults, however, embedded within the acculturation process are multiple learning and unlearning situations that are part of the complex change dynamic that Schein (2004) identified as an interaction of survival anxiety and learning anxiety. Schein described computer competence as a specific cultural area that can result in feelings similar to learning anxiety, particularly when it arises from a need to change, and in the recognition of "having to unlearn something and learn something new" (p. 329). In contrast, he noted that a change that requires only new learning will not be resisted.

Argyris and Schön (1974, 1998) recognized the significance of unlearning was recognized as part of experiential learning in their notion of double loop learning. Similar to Schein's thinking, and looking in particular at ideas and innovation, Schön (1963) observed that

> we belong to many cultures, concentric and overlapping.... In a sense, I carry with me a personal culture, made up of ways of thinking and acting that are characteristic of, and perhaps idiosyncratic to me. . . I carry with me certain crucial events and relationships which serve as projective models for future situations. (p. 67)

These factors also create interference for organizational training of 'smart people' (see Argyris, 1991). Such cultural attributes that are embodied in tacit knowledge are highly conditional and may be so ingrained that one is unaware of them, and even when acknowledged, they are not necessarily open to change. Such agent and group acculturation factors can relate to shared values as well as established practices. Thus, newcomer programs that focus on the narrowly defined education needs of adult newcomers are but the tip of the iceberg from multiple perspectives.

As Kaestle (1999) observed, educational history research prior to the 1950s was framed by a focus on the progressive and beneficial evolution of state school systems.

An implicit aspect of such research was an underestimation of the "importance of the family, the workplace, the churches, and other educational agencies of pre-industrial society" (p. 123). He further noted that, then as now, that "society as a whole educates in many ways; but the state educates through schools" (p. 124). The tensions around definitions of learning framed as formal education continue to be central as they are in attempts to define the field of adult education, (see e.g,.Lawson, 1998) and in relation to educational policy, as in Scheffler's (1985) discussion of human potential. There is a tendency in adult education to frame a 'worker' perspective. As Huerta-Macías (2002) noted, "It is incumbent upon educators to familiarize workers with the employability market within their communities. Workers need to know what types of jobs are available, job requirements, the types of salaries and benefits provided, and the opportunities for advancement" (p. 121). This pragmatic focus links the state, businesses, schools and households that function in survival mode toward a common perceived objective of raising the household income stream.

In a history of the architecture and social uses of Carnegie libraries, Van Slyck (1995) set libraries as sites of personal development into a historical context. She noted that at the turn of the previous century two contrasting social movements encouraged social cohesion. Middle-class organizations such as the YMCA emphasized moral reform, whereas

> very wealthy men who had pulled themselves up the social ladder tended to be less enthusiastic about social constraints imposed from above. Instead, these self-made millionaires were attracted to libraries and other cultural institutions as a means for promoting individual development from within. (p. 2)

Carnegie's generosity toward libraries reflected his use of them as an immigrant. It was through reading at the local library that he gained an understanding of his adopted country and its history, an opportunity he wanted to provide other newcomers who were striving to get ahead and willing to work hard (see Lorenzen, 1999). His focus, however, was on wealth creation and the entrepreneurial route. It is this orientation that is of particular interest to this study and to the metaphor of the Internet as a library.

This section outlined leadership and organizational culture as a framework through which to consider adaptive learning and leadership development. The section discussed trust in relation to informal information flows and information sharing and job referrals as a particular instance of information exchange. Lastly, the inter-relationship of cultural identify and learning have been related to personal agency and development.

Summary

This chapter identified the core conceptual constructs used in this study. I used Lin's (2001) social capital model to examine information access in relation to agency and change. Schein's (2004) notion of culture provided the substantive components of the model. Three information processes allow agency focus on information behavior: information-use environment as a rational decision-making process, sense making and environmental scanning. The processes relate to formal and informal information networks, and formal and informal learning and operate within organizations, social networks and cyber-networks.

I outlined three perspectives from which to consider information behavior. The first was information communication technologies, particularly in relation to information, instruction and adult learning. The second was development, particularly human capital policies and initiatives related to Internet access as linked to alleviation of rural poverty. The third was leadership in relation to the dynamic interplay of tradition and innovation, control and creativity. The organizational structures that I introduced each seek the balance that Schein (2004) identified in his notion of an ideal information culture and an organizational culture of learning to learn—a balance of stability and order that is also responsive to and supportive of innovation and creativity.

The next chapter outlines the methodology that I used in the study.

CHAPTER 3:

METHODOLOGY

As Rudestam and Newton (2001) noted, "Key to evaluating a completed study is whether or not the selected method is sufficiently rigorous and appropriate to the research question, and whether or not the study is conceptually and theoretically grounded" (pp. 26-27). Chapter 2 outlined the conceptual and theoretical grounding. This chapter sets out the methodology, its appropriateness, and the procedures that I followed to assure methodological rigor and analytic trustworthiness.

Research Focus and Methodology

The study's objective was to explore the perceived reasons for access and usage of public-access computers among adults in Spanish-speaking households in agricultural communities. The research interest emerged from recognition of the strong motivation of rural Mexican adults to improve their economic situation. The study draws on my experience as an information professional and adult educator to examine information access among nontraditional library users. Although public libraries consider all community members as clients based on a principle of open access, for the most part, members of non–English-speaking groups tend to make limited use of them. Instead, these groups access social networks within which members draw support and exchange information. They also use home media such as radio, video, and television. The question then became: What might computer-based information access uniquely offer to warrant or motivate a change in practice among population groups who do not have a home computer?

I employed a case study approach to examine computer access as an information conduit for Spanish-speaking households in communities with a vibrant agricultural sector. Case study is "the preferred strategy when 'how' or 'why' questions are being posed, when the investigator has little control over events, and when the focus is on a contemporary phenomenon within some real-life context" (Yin, 1994, p. 1). In addition, although specific and bounded, "within its own unique history, the case is a complex entity operating within a number of contexts" (Stake, 2000, p. 439). Merriam (1998) characterized case studies as particularistic, descriptive, and heuristic and observed that what they reveal about a particular phenomenon makes them a good approach to answer practice-based questions. Case studies "can bring about discovery of new meaning, extend the reader's experience, or confirm what is known" (p. 30). Stake noted that a "case study can also be a disciplined force in public policy setting and reflection on human experience" (p. 448). These factors affirmed a case study as appropriate.

In this exploratory study I sought understandings of informational priorities and alternatives from which to derive actionable and strategic recommendations. Recommendations derived from research with an applied orientation tend to incrementally improve the outcomes of existing services or practices. This study took a critical rather than a service-delivery approach in keeping with Mills's (1999) distinction between a practical and critical research orientation. The premises were twofold: Access to computer-based public information offers the potential for social or economic benefit, and the provision of such access through community sites has the potential to extend the benefits to those without home access. Within a critical orientation that subjected these assumptions to question, in this study I sought grounded understandings of the perceived potential and uses of computer-based information for rural Spanish speakers. The study was interpretive in seeking to understand the "complex world of lived experience from the point of view of those who live it" (Schwandt, 1998, p. 221).

This section has outlined the study focus and methodological rationale. The next section outlines my orientation as the researcher and explicates related assumptions.

Researcher as Instrument

Because qualitative researchers are "attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them" (Denzin & Lincoln, 1998, p. 3), it is expected that researchers will make explicit their own meanings and beliefs.

Researcher Orientation

The study reflects and was bounded, at least in part, by my lived experience, by value choices embodied in my worldview, and by choices that have been made among ideological views subject to ongoing debate (M. Fine, 1994; Welton, 1995). My sense of social justice demands fairness, integrity, and honesty, an orientation that I attribute to my Scottish roots going back to Andrew Carnegie's Dunfermline. Parker Palmer (1993) framed what for me is the essence of adult life and learning; namely, exploration of the complex connections between inner and outer life. This is the individual journey that we take to let our life speak, not to others, but to ourselves to situate our actions in concert with our values.

My pragmatic orientation is consonant with that of Dewey (1933, 1936) specifically, that reality is what we act on while recognizing it as an hypothesis open to question. We are "continually called upon to test, to experiment with, what we know" (Ingraham, 2000, ¶ 3). With regard to adult learning, Stein's (1992) analysis of Dewey's thinking identified a shift in emphasis "from problem solving to meaning making and from responsive educational institutions to creative community" (p. 177)—a shift never explicit in Dewey's writings. Such a shift would be consonant with Dewey's appreciation of the work of Hull House and its combination of cultural and experiential learning. In an interpretation of Dewey and Freire, Betz (1992) observed that both have argued for creative and innovative thinking toward action, albeit with distinctive differences. Knowledge production is the outcome of such adaptive learning, which I view as consonant with the Darwinist notion of adaptive change as requisite for survival.

I view the social agency of each individual as embodied in the capacity to change his or her own thinking, practices, habits, or worldview. The change dynamic and its relation to self-discipline or control could be explored within the construct of Freire's (1972) conscientization; the figured worlds of Holland, Lachicotte, Skinner, and Cain (1998); or Foucault's 'freedom of thought' aimed at

> identifying and exposing the unrecognized forms of power in people's lives, ... the diverse ways that we act and think ... impose limitations that have become so intimately a part of the way people experience their lives that they no longer experience these systems as limitations. (Olssen, 1999, p. 113)

Brookfield (2001) posited that in a search for an understanding of social order and its reproduction is "a question at the heart of a critical theory of adult learning: How is it that adults learn to detect, critique, and then challenge ideological manipulation? (p. 13). Individual agency was, however, an underlying premise of this study rather than an analytic focus. In this study I recognized that information can be used to control and manipulate, and that media can increase "the risk of being tripped up in our understanding of the facts and developments" (Freire, 2004, p. 95). At the same time, introducing the compressed experience embodied within outside information can initiate alternative thinking with regard to what is, what can be imagined, and what might be possible.

Agency, Empowerment, and Leadership

With even modest changes in thinking, social change is an inevitable outcome. Interventions in thinking intrude on the social circulation of meanings, pleasures, and values—which Fiske (1998) defined as culture. For Fiske, cultural studies were a mode of critical analysis in which the focus is social identity, social relationships, and axes of social difference such as age, gender, or race; and the relation of culture to social order is never "neutral or detached" (p. 367). In applying a critical pragmatic perspective, I centered my analytic focus on the realization of agency rather than on axes of social difference. This critical orientation is consonant with my choice and use of Lin's (2001) social capital model and a view of adult educators as "cultural activists committed to support and extend ... a greater realization of agency for all learners" (Mezirow, 2000, p. 30).

The suggestion of empowerment as something to be given is an implicit denial of respect and adult agency (see also McTaggart, 1996; Parsloe, 1996). As Sanger (1996) observed, empowerment, emancipation, and ownership, three terms that are in vogue, "become hyperbole once used outside despotic regimes. ...Yet the terms are used liberally in action research literature and, in their use, mask the inherent violation of practitioners' rights as beings who might transform their worlds" (p. 183). In research on literacy in Latino families spanning a decade, Delgado-Gaitan (1996) similarly concluded that although "empowerment for Latinos in Carpinteria ... has meant cultural transformation, ... no one can empower someone else" (p. 3).

Data Sources and Procedures

This study used a qualitative case study approach consistent with its exploratory nature. I derived the data from documents and interviews because in a case study, "what detail of life the researchers are unable to see for themselves they obtain by interviewing people who did see it or by finding documents recording it" (Stake, 2000, p. 445). I attended to procedural and ethical standards and guidelines to meet the goal of "a result that your audience can rely on" (Richards, 2005, p. 141). This section outlines the data-collection methods and procedures.

Documents

I used documentary data throughout the study, initially to develop an appreciation of the history and current context of the setting. As the study progressed, I used the documents to enrich, expand, and challenge my understandings and interpretations. With such use I recognized that "understanding of the phenomenon in question grows as you make use of the documents and artifacts that are a part of people's lives" (Glesne & Peshkin, 1992, p. 54). I used local history publications to gain an appreciation for the local context and its agricultural roots and updated these understandings using US census and Department of Agriculture materials. I also collected organizational data primarily from websites, selecting organizations on the basis of connection to or support for agriculture or Spanish speakers, and monitored local community and organizational websites on an ongoing basis.

A series of almost 50 newspaper articles that the *Yakima Herald-Republic* published in December 2000 supplemented other primary data sources. The series, published in conjunction with the results of a race-relations survey undertaken with the support of the Pew Center for Civic Journalism, included local residents' stories and quotations. The stories of a group of young Yakima *abrecaminos*—those who have found a path, which gave direct voice to family members as farm workers from Mexico—provided additional secondary data (Bodeen, 2002). The study also drew on biographical and research materials related to Latino families and agriculture to enrich my understanding and aid in interpretation (e.g., the journey of Francisco Jiménez, 2001, from Tlaquepaque to a professorship at Santa Clara University). In addition, the study drew on historical and biographical works that would similarly enrich the understanding of chosen life role and lifestyle (e.g., a Scottish farm manager (Koretchuk, 2002) and a mid-western Anglo farmer (Rhodes, 1997)) to counter balance human tendencies toward stereotype patterning, as portrayed in Boyle (1995).

Interviews

I conducted in-depth interviews to gain a grounded understanding of the perceived uses and benefits of access to public information for Spanish speakers who are motivated to use computers in public-access sites. As Kvale (1996) noted, "The quality of the original interview is decisive for the quality of the later analysis, verification and reporting of the interviews" (p. 144). A guide that I prepared to maintain a consistent sense of direction enhanced the quality of the interviews. My questioning followed the techniques outlined in the literature to reduce the risk of leading or otherwise introducing bias (see Kvale, 1996; Mertens, 1998; Seidman, 1998). I piloted the interview guide with a retired librarian from a rural Alberta community and revised the questions based on her responses. The suggestion to pilot the questions with a local rural librarian came from a leading Latina researcher and librarian whom I contacted via the REFORMA listserv. A fellow graduate student and a Latina researcher from Tomás Rivera Policy Institute whom I contacted by e-mail then reviewed the revised questions.

Fieldwork and Observation

The individual case study is the simplest form of fieldwork (Shank, 2000, p. 53). Fieldwork requires the selection of trustworthy informants and observation, and I selected trustworthy informants as outlined in the following section. Observation involved both informants' worksites and numerous information grounds, including grocery stores, family restaurants, coffee shops, malls, museums, organization offices, and motels across Washington State and northern Oregon. I spent several weeks observing and talking with local residents—old-timers and newcomers, business owners and staff, professionals and shoppers. The wide-ranging observations and casual conversations were appropriate to broaden my understanding of the locale and suggest alternative insights to those that arose from the formal interviews. The study's descriptive and statistical data highlight Yakima County and Washington State, and I also gathered data, made site visits, and spoke with a wide range of individuals connected with rural Spanish speakers throughout the Pacific Northwest. My observations included computer classes delivered in Spanish at the agricultural station in Prosser that were part of a course that the staff of Rural Community Development Resources (RCDR) in Yakima City developed and delivered in response to a survey of Latino farm owner-operators.

Sites and Participants

This section outlines the site- and participant-selection procedures and the procedural checks and balances to ensure that the data were handled carefully and appropriately.

Selection Rationale

Because I was seeking data on the perceived information priorities of Spanish speakers, it was important to draw on informants situated in an area with an established Spanish-speaking population. It was also appropriate to select an area with a substantial overall Latino population. Yakima County encompasses factors that provide the basis for a case study as envisaged by Stake (2000). The County is ranked first within Washington State in terms of agricultural production, with 10%-12% of the population being employed in the farming, fishing, and forestry sectors. In addition to a significant influx of transient and migrant workers during the harvest period—the majority of whom are Spanish speaking—the county has a growing cadre of Latino farm owner-operators. The household population of the county is 218,000, of whom 36% are Latino. In 31% of the households the members speak a language other than English, and of those, 97% speak Spanish. Established education programs for Spanish-speaking farm workers and owner-operators exist, and the Washington Association of Minority Entrepreneurs in Yakima has helped limited-resource Latinos to establish agricultural businesses. All of these factors formed the basis for a significant case study on potential information flows within Latino households in an agricultural community. I believed that the Yakima Valley was likely to have informants with a depth and range of experience related to Spanish speakers' access to computers and information.

Informants and Questions

This study drew on the perceptions of information and communication professionals as informants. These informants were associated with intermediary organizations such as libraries and community technology centers that support or offer information and/or training services related to computer use and served Spanish speakers. I had identified groups and contacts likely to yield informants and posted a call for volunteers through the Pacific-Northwest REFORMA listserve. The informant group snowballed through referrals from initial informants and other researchers. See Appendix B for the interview schedule.

Prior to each interview, I confirmed the availability of my supervisor and myself to answer subsequent questions and provided a copy of the study overview, which is available at http://www.ualberta.ca/~prempel/dissertation.html. I responded to all questions and sought to identify and address any other issues that might influence participation decisions. The interview arrangements assured a convenient time and place that offered sufficient privacy. I confirmed the undertakings noted in the consent form (Appendix A) and retained a signed copy. I also provided the informants with the interview questions in advance at http://www.ualberta.ca/~prempel/provider-int-gd.html.

The interview group comprised 11 informants, all of whom worked with Spanish speakers at public computer-access sites. Two thirds worked directly with Spanish speakers onsite, and one third were or had been directly involved in the establishment or advancement of such sites. Two thirds of the informants were female; one third were male. The informants were evenly spread with regard to early, mid, and established experiential perspectives in terms of career and lifespan situation. Half of the group were of the Latino community. Almost all of the informants spoke Spanish and English, and most were fluently bilingual. Several had taught English to migrant farm workers. Spanish was a second language for one Latino informant.

One informant was interviewed in each of three urban centers that serve rural Spanish speakers and are destinations for Yakima Valley Latino's: Seattle, Yakima City and Portland. The other eight informants were situated south from Yakima City through to the Tri-cities area including Pasco and Benton, see Figures 2 and 3 below.

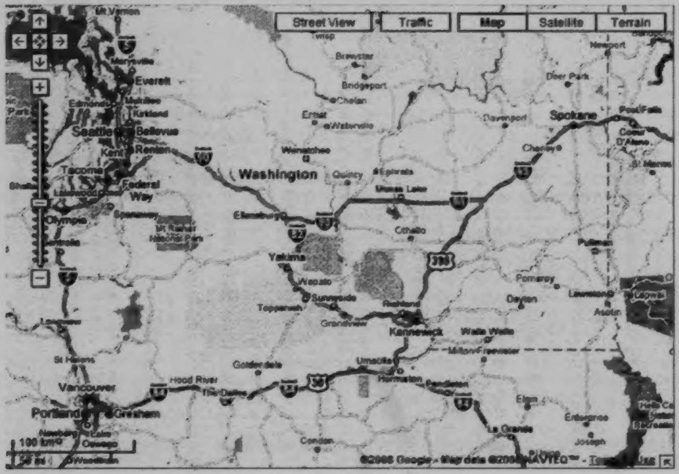
Street View
Traffic
Map
Satellite
Terrain
Mt Vernon
Marysville
Everett
Edmonds
Kirkland
Seattle
Bellevue
Kent
Renton
Tacoma
Federal Way
Lakewood
Olympia
Mt Rainier National Park
Twisp
Brewster
Bridgeport
Chelan
Entiat
Waterville
Wenatchee
Washington
Quincy
Ephrata
Moses Lake
Ellensburg
Othello
Yakima
Wapato
Sunnyside
Toppenish
Grandview
Richland
Kennewick
Walla Walla
Milton-Freewater
Newport
Deer Park
Davenport
Spokane
Post Falls
Coeur D'Alene
Cheney
St Maries
Pullman
Pomeroy
Dayton
Lewiston
Asotin
Lapwai
St Helens
Vancouver
Portland
Gresham
Newberg
Lake Oswego
Woodburn
Hood River
The Dalles
Goldendale
Umatilla
Hermiston
Pendleton
Elgin
La Grande
Enterprise
Joseph
Condon
100 km
50 mi
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Figure 2. Map of Washington State (adapted from maps.google.com)

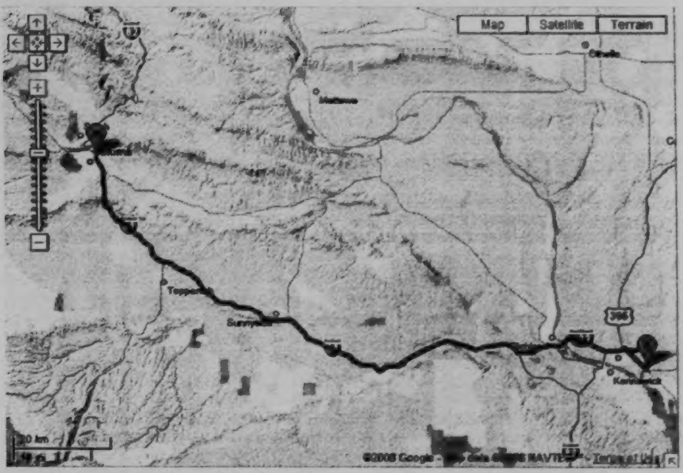

Figure 3. Map of extended Yakima Valley (adapted from maps.google.com).

The broad and diverse perspectives of the informants, combined with their deep experience, provided unique insights into the information needs of Spanish speakers. This approach had the advantage of being less intrusive while allowing me to capture data that reflect a breadth and depth of direct experience over time. The informants' perceptions were drawn from their observations, interactions, and, in some cases, direct feedback that they had received through a range of tools that included suggestion boxes and focus-group participation.

Data-Analysis Procedures

As Coffey and Atkinson (1996) noted, "It is important for qualitative researchers to explore their data from a variety of perspectives" (p. 4). Richards (2005) emphasized that "establishing the grounds for your claims requires adequately knowing, exploring, searching and making sense of your data" (p. 144). This section outlines the data preparation and exploration process that I followed to assure that I handled the data and their analyses carefully and appropriately.

Data Records

Data reduction is required if a story is to be told or an account given of what the data show (Richards, 2005). At the time of the initial research events, I took notes and collected local brochures, newspapers, and other documentary ephemera to assist in later recall. I recorded and transcribed each interview and reviewed each transcript against the tape for accuracy and completeness. I then provided copies of the transcripts to the informants and asked them to advise me of any substantive omissions or inaccuracies; they identified none.

I have retained the interview tapes along with copies of the print transcripts in a secure file box in accordance with institutional guidelines on time and conditions; they remain available for audit checking. I have also retained various working versions of the data records, including those that I used for initial manual coding and analysis. The digital version of the transcripts that I utilized in working with NVivo is on a secure computer. Disposal of the files and print copies of the software-generated project documents and reports that form part of the audit record will follow the guidelines for original records. I have shredded on an ongoing basis all print working documents not retained as part of the audit record.

Coding and Concepts

Ideas emerge from working with the data (Richards, 2005). Coding helped to "open up the data and move to interpretation" (Coffey & Atkinson, 1996, p. 31). I used descriptive coding for the informants' attributes and coded the interview transcripts, first manually and subsequently using the NVivo software. In NVivo I did further analytic coding, which contributed to the objective of reconstruction: to build a network of concepts, conceptual relations, and data hierarchies. This analytic coding provided the foundation for the emergent themes, constructs, and interpretation presented in Chapter 4 and began the process of exploring for deeper or latent meanings and raising meaningful possibilities toward interpretation and meaningful conclusions. In exploring the data I sought to "illuminate the constant, influential, determining factors shaping the course of events" (Miles & Huberman, 1994, p. 301).

Presentation of Results

My initial decision to use the term *Hispanic*, which seemed to be the most inclusive term used in the research literature, was challenged before I collected any data when a fellow student from Mexico reviewed a draft of my questionnaire. She pointed out that the term Hispanic is unacceptable and should changed to *Latino* to recognize the participants as Spanish speakers from Latin America rather than from Europe. Indeed, for many Mexicans the term Hispanic is a colonial artifact. Latino is thus the term of choice in this study because the pertinent Spanish speakers are of predominantly Mexican heritage (see also Shorris, 1992). However, when individuals self-identify by a particular term or when I refer to the research of others, I retain their terminology. I recognize that for many, as Suárez-Orozco and Páez (2002) noted, "the term Latino is a new and ambiguous invention" (p. 3) and one that "has meaning only in reference to the US experience" (p. 4). Even though I use the term Latino throughout to refer to those of Mexican heritage who are living in the US, I recognize that this term conflates many diverse groups, including those of American and Mexican citizenship, those recently arrived or resident for many generations, and those of diverse Indigenous Mexican heritage. In addition, I have used *newcomers* as a more inclusive term that includes immigrants, workers who may be transitory or long term, and in-migrants who may be affluent or poor. All newcomers are, almost by definition, outsiders in contrast to oldtimers or insiders. This is the case within organizations, ethnic groups, and communities and it represents diversities of background, experience, and values. I also recognize the very subtle ways in which language can exacerbate the effects of othering (Cahoone, 1996) and reinforce in-groups and out-groups.

L. T. Smith (1999) cautioned that, although the presentation of the research results is part of the research responsibility, "for indigenous researchers sharing is about demystifying knowledge and information and speaking in plain terms to the community" (p. 160). The emphasis for the Latino community, as the National Latino/a Education Research and Policy Project (2005) identified it, is for the findings to "move in a feedback loop back into the local ... communities from which the data came" (p. 534). I remain open to such presentation alternatives. The community-level recommendations derived from the analysis of the study findings are presented in Chapter 6, and I have shared them with Washington State connections who were in a position to consider them from both an insider and an expert perspective. Some of my derived understandings were validated in the course of our conversations.

Authenticity and Trustworthiness

Qualitative approaches share "a central concern with transforming and interpreting qualitative data—in a rigorous and scholarly way—in order to capture the complexities of the social worlds we seek to understand" (Coffey & Atkinson, 1996, p. 3). Toward this end, I applied the recognized criteria for qualitative research of credibility, transferability, dependability, and confirmability (Denzin & Lincoln, 1998).

Credibility

The standard to establish credibility "is to demonstrate that the inquiry was conducted in such a manner as to ensure that the subject was accurately identified and described" (Marshall & Rossman, 1999, p. 192). Carspecken (1996) recommended a low-inference vocabulary and member checks to assist in identifying and reducing researcher bias in attention, vocabulary, and values, and I applied these techniques. I conducted informant checks following the interview transcription, prior to analysis. I affirmed their right to withdraw after reviewing what they had said and determining that what I had transcribed reflected their view of the phenomenon. The informant check also served to minimize the possibility of inadvertently causing embarrassment to the participants.

Transferability

The transferability of research results rests on establishing that the "findings will be useful to others in similar situations, with similar research questions or questions of practice" (Marshall & Rossman, 1999, p. 193). Qualitative studies do not use sampling procedures or sample populations of a size that allow the results to be generalized to wider populations; they do not offer predictability. Hence, "demonstrating the applicability of one set of findings to another context rests more with the researcher who would make that transfer than with the original researcher" (p. 193). The record of this study includes a description of the study's context with sufficient depth and detail to contribute to a reasoned judgment on its transferability.

For case studies Lincoln and Guba (1994/2002) added an empowerment criterion that speaks to cross-cultural credibility and transferability. It is the "ability of the case study to evoke and facilitate action on the part of readers" (p. 211).

> At the very least, empowerment implies consciousness-raising. Perhaps it means providing arguments that readers can use in their own situations should they attempt action based on the case report. ... It means making clear what action steps are indicated by the inquiry—not just what we have, but what our findings say about where we should be going. (p. 211)

L. T. Smith's (1999) analysis of outsiders' research on the Maori suggests that many of them did not take the necessary care in unfamiliar settings and "have, as a result, not only not found 'truth' or new knowledge; rather, they have missed the point entirely"

(p. 174). Although it is not for me to judge whether I have "missed the point entirely," this exploratory study has resulted in insights that I believe add to the limited knowledge of pragmatic application in this area. The measure of this will be the subsequent use to which the study findings are put.

Dependability

The dependability of the study flows from "the researcher attempts to account for the changing conditions in the phenomenon chosen for study and changes in the design created by an increasingly refined understanding of the setting" (Marshall & Rossman, 1999, p. 194). I maintained a careful audit of the research data to enhance the study's dependability. In addition, I monitored the coding for consistency over time. Interpretations can be considered confirmed when other people in similar positions to the informants or the population of interest recognize the researcher's interpretations of the informants' perceptions and the understandings derived from them. This has been the case.

Confirmability

The confirmability of the study requires that "the data help confirm the general findings and lead to the implications" (Marshall & Rossman, 1999, p. 194). "The basic issue here can be framed as one of relative neutrality and reasonable freedom from unacknowledged researcher biases—at the minimum, explicitness about the inevitable biases that exist" (Miles & Huberman, 1994, p. 278). Richards (2005) elaborated that for research to be recognized as strong and sound "requires vigilance against unquestioned assumptions, narrowing of viewpoints, avoiding of alternative possibilities" (p. 142). To contribute to the confirmability, I reviewed documents and literature on an ongoing basis as a source of disquieting data. This included case studies with comparative aspects such as information use by the poor and by Latinos, agriculture and Latinos, and agriculture and ICTs.

Ethical Considerations

The general ethical considerations that I applied throughout the research process were informed consent, right to privacy and protection from harm. I specifically addressed them in the ethics review for this study. Informed consent means that potential participants are advised of the context of their participation—the project description, what they will be asked to do, and what will be done with the resulting data—before they agree to participate. Prior to their participation, I obtained their consent within the parameters outlined in Appendix A. No under-age participants were involved in this study. The consent forms and the accompanying information letters were prepared in Spanish and English, and I advised all participants of their right to opt out of the study without penalty and of the steps that I would take to ensure confidentiality and anonymity. I maintained the participants' privacy and anonymity by protecting access to and maintaining control over the dissemination of any personal information. Because there was no apparent risk to the informants, I have identified the broad geographic area of the study. However, I have minimized the informants' contextual information to assure anonymity and confidentiality. I also assured anonymity by using numeric coding in the analysis and gender-neutral pseudonyms in the presentation. In addition, I have minimized any descriptive participant information in writing up the study. The consent form also addressed confidentiality conditions as they would apply to others involved in data collection, translation, or transcription. I have attempted to anticipate and protect the participants from any harm that might come to them as a result of their participation in this research. I provided them with my supervisor's and my contact information in case they wished to express concerns or obtain further information. The Faculty of Education, Department of Policy Studies Research Ethics Review Committee approved the design for this research in June 2002.

Summary

This chapter outlined the methodological approach, specific data-collection methods and analytic procedures and their appropriateness to the research question. Their planning and use facilitated the collection of trustworthy and pertinent data that were amenable to analysis and had the potential to develop robust and meaningful insights and understandings. The next chapter sets out the empirical foundation of the study.

CHAPTER 4:

NEWCOMER INFORMATION NETWORKS

Chapter 3 outlined the study methodology and provided an overview of the informant group. This chapter presents the study data, which include the informants' perceptions of the information priorities and evident communication channels among Spanish speakers who use public-access computers in the Yakima Valley.

Overview

The purpose of this study has been to gain an understanding of the role that ICTs, in contrast to existing social networks, might play in the processes of affirming tradition and informing change. The next section presents an introduction to the setting and the informants, followed by a descriptive overview of the informants' perceptions, which provide a context for the study findings. These are followed by a thematic presentation of the analytically derived study findings. Informant data address the study question insofar as it involves Spanish speakers whose access to computer-based ICTs is primarily through community-access sites. The chapter closes with an interpretive summary of the findings.

Introduction

In the last decade newcomers seeking the American dream have arrived in the US in numbers reminiscent of the inflow at the turn of the last century. This is the case in Washington, one of the newly Latinized states. Latino newcomers are likely to arrive in the Yakima Valley highly motivated and materially challenged. Most find work in the farm fields and orchards, and some will see in the Valley a place to settle and start a new life. Valley communities have a limited social safety net in which the highly traditional informal safety net, comprising extended family, church groups, and cultural groups, plays a significant role. For those who decide to settle and start a new life, this social network can often offer some staying power by providing immediate survival necessities. The structure is such that newcomers can maintain relative obscurity while finding their footing. The social network furnishes an orientation and a quiet introduction to the local community and its layered practices. Local church and community groups and agencies also reach out to support newcomers. Some have members or draw on volunteers who speak Spanish. Others have an Internet presence. This social network is instrumental in connecting work and workers. It is also, and perhaps as important, the site of shared sense making.

In the Yakima Valley one finds communities that continue to reflect friendliness and reciprocal neighbor-to-neighbor support that was essential to community survival at the turn of the 20th century. The recent newcomer numbers, however, have created pressures on all social support and education systems as these systems struggle to respond to the growing numbers of non-English speakers. The adult education supports are being stretched to assist newcomers, some of whom are not print literate, to enhance their skills and capabilities through such programs as English as a second language (ESL) and adult basic literacy (ABL), and the General Education Development (GED) test. Through various newcomer programs, including those that public libraries offer, newcomers might participate in an introductory computer class and possibly be introduced to the services and resources of libraries. Libraries, continuing their tradition, are sites with readily available resources to support self-directed learning. This tradition now extends to community technology centers and e-libraries with computer- and Internet-based resources. The various community centers, including churches, clinics, and farm-worker organizations also offer a range of information, education, and support services. A unique focal point in the Yakima Valley is KDNA, the community-based Spanish public radio station, and its parent organization, Northwest Communities Education Center. All of these services draw on the experience of established Mexican-American residents. They provide a stable base for the process of acculturation to incorporate new skill sets and new connections.

As newcomers engage with the wider community after taking care of essentials and become more proficient at using ICTs, it is anticipated that they will gain confidence in their capabilities to move beyond knowledge informed by direct personal experience and family members to knowledge also informed by accessing a wider range of local and outside communities—potential information sources and dialogic communities.

Perceptions of Access Providers

This section begins with a descriptive presentation of the informants' perceptions of the potential and the impact of ICTs with their global reach, of how these opportunities might be limited in rural areas of Washington State, and of how such ICTs have changed their workplaces and their working tools. The section closes with descriptive highlights of the informants' perceptions of their rural and Spanish-speaking clientele. The sections following draw on the informants' perceptions to present thematically the results of the further analysis of the interview data.

In this section, as in the rest of the study, the words of the informants are italicized. In some instances their words are juxtaposed as a collage within a paragraph. In other instances they are set apart as a quotation, but they are italicized in both cases. I have not individually attributed the words of the informants. Where the analysis has indicated that their perceptions reflect differences that can be grouped, I have used the following differentiating descriptors of Anglo and Latino; and young, midlife, and mature. In this study the young informants were in the early years of their career and spoke as unmarried individuals, those in midlife and midcareer spoke from the perspectives of parents, and those in the mature category spoke from the perspectives of grandparents. These categories tend also to reflect life experience and a wider range of experience with different technologies and their integration into home and work life. See Chapter 3 for a discussion of the use the terms *Hispanic* and *Latino.*

Information Technology Opportunities

The initial question that I posed to the informants was what the term *communication opportunities* in information technology meant to them and whether those living in rural areas were disadvantaged with respect to participation. The question was introduced with the statement that "in the past decade advances in information technology have facilitated a global communication network ... providing unprecedented communication opportunities to organizations and individuals" (Women Action 2000, 1999, ¶ 6). First and foremost, the informants responded that the quotation brought to mind communication by means of e-mail. The qualifiers that they used were *"incredible speed," "ease of use," "free access," "widespread use and understanding of the Internet," "being able to communicate with the latest technology,"* and *"the information* *highway which is the Internet."* Such communication often centered on keeping in touch with family; for example:

> *We have people here from all over the world, people that need to speak to each other. For those out of country it means communicating with their family, keeping in touch with where their family is, the gap when you transition to another country. It makes being here easier if you're only here temporarily or relocated while you're trying to bring your family here, being in touch with what your children are doing. Patrons communicating to Mexico from here receive pictures.*

The transborder family communication was poignantly captured in the words of one informant, who commented, *"I hear him chuckling and I think, He's talking to his brother"*—the brother lives in Mexico. The words of another informant provide an apt summary of what the communication opportunity represented: *"The benefit is in e-mail, access to what's happening in their countries, being connected with their children."* The informants' perception that the Internet seems first and foremost to be about e-mail are in keeping with those of mainstream America (Pew Research Center, 2005a).

The words of a young Latino capture the sense of the digital divide: "*It's all over the news that Latinos are in the information divide and we're on the wrong side. So people get a little bit—well, I don't want to get left behind.*" Another informant sought to clarify what seems to be a common misperception among English-speaking North Americans: "*A lot of people think of Mexico as a very poor country, but there's a lot of technology there; patrons come in just to use the Internet to get on the e-mail to contact their family in Mexico."* In addition, *"A patron who in Mexico was a computer programmer, he is working at [occupation] That's not what he was trained for, but it's a living. He was able to get a contract in Mexico and went back."*

All informants had the questions in advance; however, it is possible that the interview responses were influenced by the phrasing with its emphasis on communication. As one informant noted, *"My first thought was, it meant something having to do with access to computers and the Internet; then, reviewing the material, I realized that you were thinking of television and radio as well, which, of course, makes sense."* Another observed that *"right now it would probably be the information highway which is the Internet. The other form of communication to me is the reading part; once you master reading, you'll be able to communicate in so many different forms."* Moreover, *"to communicate what you need, you have to stay within the means of* *communication that the rest of the world is using.*" Another mature informant put the UN quotation into a broader perspective:

> *My reaction to that quote is that every technology increases communication opportunities. Think of the automobile—you got to see other people. So there are opportunities and they are unprecedented, but I think it's going to be more of the same. We're all still human beings using these tools, and we're going to use these tools for good or ill—the way we've used tools in the past. So it's going to be what we make of it.*

Rural Impact

To draw out what might be a rural dimension in addition to aspects that might apply only or primarily to Spanish speakers, I asked the informants, "Would you describe those living in rural areas as disadvantaged with respect to participation in these communication opportunities?"

In rural areas, as one of the informants summarized, it is not only a question of funds: *"If you have unlimited funds, you can have as much access as you need, but still it's more challenging."* Among the additional challenges were *"to get a phone line or additional phone line. You need to be even more sophisticated in having technology that's satellite based. There are areas where unless you have cable you don't have any TV stations at all."* In addition to physical and infrastructure limitations, rural residents are, in the words of one informant, also limited in terms of the connections that are available to them:

> *It's a jargon term, connectivity. I can see the ads for all the ISPs in the world here in the lower end of the Yakima Valley, and I can't reach any of them because it's extended-area calling or long distance, so I use a local Internet provider. Sure, I'm getting on the Internet, but EarthLink and AOL and all those others I can't use because I can't get to them. Our cable company down here in the lower Valley—in the rural areas—does not offer the same channels that it does in Yakima, which is a more urban area. Well, excuse me! Even our farm workers are intelligent people who like to think and converse and learn.*

Those who use public-access computers face additional constraints: *"Transportation is always a problem, especially for kids."* Sites that are more remote and smaller also tend to have limited hours of service: *"And maybe if there is a library, there's no room in the library."* These issues are compounded when access to a computer is in a nearby small town. For example, *"In Granger the library is there, but it has really bizarre hours. Two days a week it's open in the morning; one day it's in the evening. I can't even remember* *their schedule."* And migrant families far from town simply *"aren't able to take advantage of those opportunities."* This can be the case even for services provided through the migrant day-care centers. Thus rural residents, those with lower family income, and those who live still further from population centers are faced with additional constraints to connectivity and access.

In rural areas the library informants saw *"a lower level of understanding about what is available and what is out there and what they could be doing with all these new tools that are becoming available."* The informants noted that staff may end up teaching students technology skills that, *"were they in any of the schools in the city, they would have learned in school."* For adult patrons, more particularly those who are older, *"there are a lot of people who would benefit from it and who know that they have that opportunity here, but because they are intimidated by the technology, they never come in and give it a chance."*

The informants identified transportation, child care, and literacy skills as practical barriers to program participation. The limited availability of Spanish-speaking staff, in turn, limits outreach initiatives as well as program and class offerings—in terms of both frequency and timing flexibility. The limited availability of bilingual instructors or volunteers also impacts the cost of hiring hourly instructors. Rural-program scheduling has to take account of the seasonal nature of agricultural work. *"The language barrier was the largest—that was one of the biggest concerns."* Thus, language proficiency can be added to the rural limitations already noted.

Organizational Mission and ICT Impact

I asked some of the informants to indicate the impact of new ICTs, particularly the Internet, on their own work or work environment. As in the previous section, which addressed client interests, they identified e-mail as the most significant change. Much office work is actually conducted via e-mail, and as one informant noted, *"There's no more memoranda in paper; everything is on e-mail."* Another observed that, *"internally, we're highly dependent on the Internet. Reports are done online, messages, video streaming when there are programs, updates on satellite. Just communication—communicating even within our office."* However, one informant who operated in such a highly technological operation noted the impact of the treadmill effect of constantly changing technology:

> *There are things out there I'm not even attempting because of the learning curve. So trying to keep up with changes in technology is a constant challenge, and I think it takes somebody who is very buoyant to be able to see everything as positive. A lot of days I don't. I'm like, Oh, all I want is to do this. Why can't I do this?*

Nonetheless, the office setting provides the equipment, training and technical support, and a peer learning group. In addition,

> *most people that work in an office or any type of work environment where they have access to computers are going to have the ability to communicate during work hours and on employer equipment for their own personal purposes. So, yes, you can e-mail to your family in Texas or in California. It's also going to make you better at it and more addicted to it.*

Furthermore, *"people have become accustomed to this in the workplace, and then it spills over. So that's how they carry out their personal communication"* and *"So again, going back to the people who have entry-level positions or positions in agriculture where they're not exposed to computers, they're not going to get introduced to them."*

This section outlined the informants' perceptions of the potential of access to the Internet. Their perspectives are a reality for those of us who spend our time in an office working with information and where the technology is such an integral component of how we work. Although we recognize the more limited opportunities for those in agriculture to be introduced to this potential, we may, at the same time, be overestimating its importance in daily life—both in our own and others.

I asked the informants to identify briefly in the context of their organizational mission statement what they would see as the key benefits of programs or services to rural and/or Spanish-speaking clients. In some instances a CTC has been incorporated into an established community center with a broader social mission and an interest in information related to specific community issues. For some libraries the changes resulting from the introduction of computers have reinvigorated a community-center orientation while offering new ways to serve clients. Urban and rural clients now typically have offsite access to extensive library databases, and some libraries are investigating the addition of wireless connections for traditional bookmobiles. As the satellite-campus and distance-education offerings increase in rural areas, in addition to providing course-related resources, library staff sometimes act as proctors for higher education students who are taking Internet examinations. Some rural libraries are supporting residents and students through computer-based access to full-text databases. As one informant noted, *"We would never have been able to afford the magazine databases we've got, ... and now we can get the things they need. And this is where computers are saving rural libraries."*

The broad mission of the informant organizations, as would be expected, centers on the provision of information services and access, computers, and training. The primary library emphasis is on access to information, computers, and information services; whereas the CTC emphasis is on access to training, computers, and information services. The informants explained the purpose: to *"assist people in finding the information that they need," "provide information to people on how they themselves may access the information that they need," "a main source of information," "being able to provide the information they need."* One informant captured the role of technology for library staff:

> *I don't try to sell the idea of technology or access or the Internet as the only thing that exists now. I try to actually convince people—or just let them think of it—in terms of, We're still here in person, we're still here by phone, we're still here by mail, but now we're also here by e-mail if that's easier.*

In terms of hardware access, however, one informant noted, *"From the moment we open until the moment we close, we have people on those computers. Most of the people that come here don't have computer access at home."*

Spanish-Speaking Client Groups

I asked the informants about their rural and Spanish-speaking clients. This seemingly simple question goes to the heart of a multilayered reality that one of the informants aptly captured: *"There's so much to that. There are so many different directions to go there, because we've seen a wide variety."* Another informant commented, *"For the most part, if we're talking about adults, very respectful. For the new ones, very shy. They hold back until they get to know me. ... Very respectful. They don't want to do anything wrong."*

In addition:

> *With the younger set, very interesting. Well, they understand. Also very respectful, courteous. But they know their way around. They don't hesitate to*

> *ask. They're more outgoing. And what I'm describing is everyone in general; it's not just the Hispanic community.*

With regard to Spanish-speaking clients in general, *"these people are very hard working, and their time is limited, so they come in for a purpose—even if their purpose is just to use e-mail."* Many of the Spanish-speaking families in the Yakima Valley who work in agriculture are, in the words of another informant,

> *people with an inexhaustible supply of dignity and patience. They have come up here to do an honest day's work. They're not getting an honest day's pay. They're sure as hell not getting an honest day's respect. And yet they stay because it's better than where they were, and they're willing to deal with anything that comes up for their children's sake. What could be more the American dream than that? These are definitely tired, poor, huddled masses; and they are coming in for the sake of their children. This is what it's all about.*

In describing the Spanish-speaking population, the informants noted that, as a group, they are hard working and family oriented. An Anglo informant provided insight into how these factors impact daily life and middle-class notions of 'free' or leisure time:

> *The Hispanic population doesn't really have that much leisure time. I don't think they have leisure time basically. ... A lot of their time is spent working. The wife works, the man works. One works the day shift, and one works the night shift. And what there is is involved with family: "Let's go see if Grampa is okay. Let's go visit Aunt Beth across the street or somebody." I mean, it's all very busy. We've had a lot of Hispanic kids work for us, and they're all very involved in family. And I don't think they have any leisure time either.*

This reinforces the significance of time along with financial cost as major considerations. It could also relate to another observation; namely, that Latinos as a group do not generally participate as volunteers in regularly scheduled activities. They are, however, willing to participate in specific goal-oriented events. Another Anglo informant offered a similar insight:

> *When you're working with the Hispanic community, you cannot go out and present a full-blown program and expect everybody to go, "Oh, whoopee!" and fall into it. ... You ask them. And then you may have to wait a little while for the answer, but that's okay; they're thinking about it.*

A Latino/a informant had noticed a growing entrepreneurial orientation. Many of the Mexican newcomers continue to be

> *hard working, determined. And some have the entrepreneurial spirit. ... Since the middle 'eighties and up to now you see a lot of first-generation Mexican people straight from Michoacán, and they're business owners. [The earlier] generation, they never thought about being business owners. These people are a different breed. ... Even if they get paid less, they would rather work for five dollars per hour but be their own boss and look forward to building a business. So they are a lot more, like I said, in focus with their goals.*

The observation of a mature Latino/a informant raised an issue that, although it reinforces the reality that Spanish-speaking households in agriculture can be under stress from multiple directions, is beyond the scope of this study:

> *It's a cultural clash that nobody—that universities, schools are not paying attention to. ... The majority of our immigrants, farm workers in rural areas in this part of the state of Washington are very poor. They are economically disadvantaged. They are being confronted with some very serious problems that were not there in the '60s or '70s. And their problems now have to do with the pressures of our overall society and the value system of our society.*

This observation does, however, put into perspective the significance of the digital divide and very poor households' access to computers.

Emergent Themes From the Data Analysis

The previous section presented a descriptive overview of selected informants' perceptions that provide context for the study findings. The section framed the informants' perceptions of the Internet's potential and situated it in the context of the Yakima Valley and its Spanish-speaking population. This section presents the study findings as derived from a thematic analysis of the interview data that was guided by the study questions. The section following presents an interpretive summary of the themes in relation to the study question.

As outlined in Chapter 3, these findings derive from the informants' perceptions rather than a direct survey of the population of interest. This approach had the advantage of being less intrusive while capturing data that reflect a breadth and depth of direct experience over time.

The findings framed in this section reflect the priorities and strategies evidenced among individuals who might utilize computers in public-access sites as one path in extending their access to resources and services. Where such sites are within public libraries, they are also sites rich in information resources that are not computer based. Although the focus of the study was on information flows, the analysis of client priorities and interests revealed an interplay between informing and learning that is not readily separable.

Client Expectations and Understandings

I asked the informants to describe the expectations that clients seem to have of the programs or services that the informants offer as well as to identify areas in which they thought client expectations have arisen from a lack of experience, a lack of interest, or different cultural expectations.

Expectations. This section outlines those aspects of the study findings that center on factors related to the use of public-access sites to access the Internet. The emergent theme from the data analysis was an initial sense of hesitancy to use the computer, compounded by a fear of what could or might happen if one did something "wrong." The identified hesitancy arises from questions about whether they are welcome, what they could expect, and whether anyone could or would speak with them. The words of one informant capture these elements:

> *One of the things that I've noticed is people being hesitant. And I'm going to go back to the Hispanic population, because that's what I know. They're a little more shy about coming in and asking, "Can I come in and use your library? Can I come in and use your computers?" So they hesitate. They're not sure if they're welcome; they're not sure if they can do this. Especially if they don't speak the English language, they think, Well, there's no one there that can help me. I think that's a disadvantage for them, that maybe they are not comfortable enough to approach us.*

This hesitance was evident particularly among older Spanish speakers and those from rural areas in their home countries:

> *The older folks, they're not really sure. They're not sure if they can come in. A lot of these came from the* ranchismos *... way out, and there's nothing nearby. And they're coming to this new country and they're hearing a lot of things. People are calling them names. People are looking at them. And they don't know, How am I going to be treated?*

As an informant in this study noted, it is important not to act as an authority figure in the initial engagement with Latino families, which can be perceived as threatening and compound the hesitance and discomfort that might be associated with this unfamiliar venue and its technologies.

The informants identified migrant farm workers' use of public-access sites as similarly influenced by rural isolation, with the lack of transportation making such use even more unlikely:

> *That population is very insular. I mean, oftentimes they all live together in housing provided by whatever farmer they're working for. Most of them don't have their own transportation, and so we just don't see too many of that group.*

The observation of one informant that *"I see very, very few non–English-speaking Hispanics coming in to use computers"* refers to a site without an established Spanish-speaking population within walking distance. Additionally, going out to the rural locations would still mean *"dealing with the people who are most reserved about using computers."*

In terms of the impact on Spanish speakers, several factors related to using computers compound the hesitancy to use public-access sites. Those most prominently identified in the analysis are language and staffing. With regard to the computer, the informants found that for many novice users, *"The technology is so intimidating to some people," "The people are just as important or more important than the hardware,"* and *"With that specific example of the [mobile] Internet, you would need to staff it with somebody who was highly skilled at both the tech end of things and at dealing with people."* The sense of hesitancy and even fear is associated primarily with a lack of computer experience or exposure. This surfaces among novice computer users regardless of their language capability or ethnicity and is more evident with older novices, seniors in particular. This might be expressed as a concern that they might "break" the computer. More often it is a matter of not knowing what to expect, not knowing how to begin. The informants particularly reported that the mouse and "that double click" engender hesitance, as do the keyboard and not knowing how to enter the coded components of an e-mail address. For non-English speakers an additional question is how to access the accented character set—all prior to learning to navigate the desktop.

In terms of the need to have Spanish-speaking staff to provide service and instruction, an informant raised the following observation:

> *Where the majority of the residents are Spanish speaking and they have this technology, it just confounds me as to why, when they don't hire somebody that speaks Spanish, they wonder why the Spanish-speaking community doesn't come. So you can throw all the money you want, but if you're not connected to who your user is—who your audience is—then what's the use?*

In such instances, although the informants widely recognized the barrier that a lack of English proficiency presents, some organizations failed to recognize that offering courses in English does not serve non–English speakers. A hesitancy because of a lack of experience or language capability adds to

> *fear about how technology and, in this case, how computers work. Plus the fact that people are not efficient—or proficient—in English to learn how to use the computer. ... So from that perspective, yes, it's going to put a barrier between you and technology.*

The findings suggest that a prime motivator to help people get past the initial fears related to public-access sites and learning the computer is communication with friends or family who already use e-mail. This is evidenced among all users, including migrant farm workers. For example, *"They've got their husband's e-mail address, and he's in Texas. All they have is his e-mail address, and they've never touched a computer before, but they want to take advantage of this opportunity."*

The findings outlined in this section are thus reflective of new users of the public-access sites or computers or both. They are not limited to Spanish speakers or agricultural workers. However, these factors are more evident within that population given their more limited experience with such sites and what they might offer and with the use of computers. The findings are also more suggestive of issues that new users face because they are more likely to be asking about assistance or instruction at the public-access sites utilized in the study.

The findings suggest that what is viewed as mainstream, or the norm, is also a matter of age. In the words of a younger informant:

> *A lot of things that I have almost come to think about as everybody knowing about, everybody having an understanding of instant messaging, I mean, it's ubiquitous these days. And sometimes I get in a conversation with somebody here—a patron who's asking about it—and I'm just surprised by how little some are still exposed to.*

Another younger informant noted:

> *We get a lot of people—even without talking about rural or Spanish speaking—we get a lot of our seniors who refuse to touch a computer because they're used to one mode of communication. ... You'd be surprised how many people have no idea what I'm talking about when I say a debit card, an ATM machine. They know they've heard of it, but they don't use those. People just stay fixed to how they've done things for years.*

Certainly, as with ATM use, changes arising from the displacement of established practices and routines can be a deterrent to the adoption of new technologies. In terms of exposure and new technologies, youth are less likely to have an alternative routine and often see the use of technology as simply transactional. For many seniors, however, their interactions with bank staff are often part of a network of social relationships built over many years.

Cultural understandings. In addition to the experiential differences outlined in the previous section, the analysis identified themes related to expectations and understandings that were perceived as cultural or home-country differences. These centered on libraries as public services and spaces, information seeking, and a family-centered orientation.

The participants described some home-country expectations associated with libraries as public-access sites that are specific to Mexico. These are related to the informants' perceptions of Mexican libraries based on what they had heard and on their firsthand experience, including the understanding that some libraries in Mexico are for the use of only students and scholars. Moreover, Spanish speakers from Mexico often seem confused about the notion of borrowing and returning library resources and seem to anticipate a fee for borrowing. This expectation of cost was widely perceived as contributing to nonuse. As an informant noted, *"I'll take twelve or thirteen people around the library and explain to them that this is a family library, that anybody can come in. What a lot of people don't realize is that the library is a free service."* They perceived the limited use of libraries in Mexico as related to Mexican newcomers' limited information skills and information seeking. A young Latino/a informant who considered information seeking a daily activity connected to libraries identified a need to reinforce the connection and the mindset

> *that it's okay, any question that you have, even if you've heard this same one and you want clarification or you have different information. This is exactly how people use this service in their daily lives. I just try to sneak that in once in a*

> *while just to get people the idea, [get] the community in that mindset, that information is part of our daily lives.*

An older informant identified the lack of information-finding skills as a barrier to moving through the steps to become a citizen:

> *But we're finding that on their way to success—or on their way to being a citizen of the United States—there are lots of hurdles that they have to cross. And some are impassible, they're just impassible, because they don't know how to get information. I would say the biggest thing we have to offer them is literacy—information literacy as well as being able to read and write.*

The ideas implicit in these perceptions—the importance of information and being able to access it and literacy as core life skills—underlie the rationale for providing digital access.

A second cultural understanding identified in the analysis was that of Latinos' traditional family-centered orientation, which arose in the context of libraries as public-access sites. One informant observed that *"Latinos do things as a family."* In addition,

> *The majority of the Mexican families, the women are very, very, very shy. They'll come in with the men, but the men will do all the talking. And first he'll look around, he wanders all around, the family wanders all around, and then they come back. And then he'll come up or I'll go and talk to him. ... Usually the women just sit there with their children; they don't interact. But then pretty soon they will. I mean, by the third or fourth visit, then they'll start getting things and doing things. But it takes a long time.*

For recent immigrants, the questions that they ask reveal that *"what they are interested in are things that will improve their situation here, by learning English, getting a job or a better job, and then assisting their children in getting a good education."* These factors were an underlying theme in what the informants proposed as idealized sites for Latinos to learn. These sites, as a safe social gathering place for families, present opportunities for them to learn and use the computer. Two informants invoked similar images: *"a place where they can come and be safe with their families and have access to English classes and the Internet and fit it around the 'telenovelas'—access to all this within walking distance of their house"* and *"to set up a place—and serve coffee—that was designed from the beginning to be a place where people would consider it a social gathering place."* And in Latin America, the *telenovela* phenomenon is a popularized genre through which nontraditional values and behaviors are presented and give rise to discussion and debate within and across families.

Client Information Priorities

The information interests of Latino patrons that were evident tend to be practical in nature. Among the identified areas of interest were jobs, community and social services, and procedures and forms for dealing with the establishment. Additional identified interests were practical do-it-yourself information and Spanish-language newspapers.

Job information: Employment/income possibilities. Evident among all rural clients is a high interest in finding job-related information. Moreover, although many clients expect to find such information on the Internet, they want access to it regardless of the format. This interest and orientation are seen as shared by Latino clients, as, for example, in Spanish classes on using the computer to access information. Clients might be looking for a job, looking to do their job better, or looking to get a better job:

> *We do have these specific computer classes directed at access to information. They are a beginning Internet class that shows you how to use the Internet for anything that you want. And sometimes that will lead to the information about jobs.*

Other informants commented, *"And sometimes I've taught classes where people have actually had jobs, and they wanted to know how to use Internet better in order to help them with what they were doing"* and "*Then a lot of people say they have a job and they would like to have a better job, and they know that having computer skills will assist them with that. That's how they put it."* For some community technology centers, work-related training is their primary role; for example, *"for us, that's what we focus on. That's why we created our computer technology center, is to help us train people and prepare them to get work."* These sites also provide training that extends to ESL and GED.

Do-it-yourself information: Self-reliant approach. An identified characteristic of the Latino clients is that *"they just want the facts."* Topics of interest include *"immigration; their rights pertaining to their legal status; citizenship; learning English; medical questions, [for instance,] chemical sprays; a lot of interest in self-help materials—parenting, law, self-help law, baking, fixing the automobile."* Other examples include embroidery patterns and cake decorations. When the information or ideas can be visually presented as illustrations or diagrams, the materials can be in English or Spanish: *"Parenting: How do I tell my child about sex, marital relations, relationships,* *law stuff, legal things? How can I afford a house? How can I buy a home? Health questions, divorce, and child custody."* Another informant reported

> *a lot of interest in self-help materials: parenting, law, self-help law, baking, fixing the automobile, all these kinds of practical things. Not much interest in literature per se except for the ESL classes. But mostly nonfiction goes out in the adult section, and then the children's picture books go out like hotcakes, and the bilingual materials also are very popular.*

In these practical areas the Internet is likely to prove useful. The informants identified such practical needs as reasons for learning to use the computer: *"I want to be able to help my child,"* or *"I've heard you can look up recipes."*

The findings also reveal an identified concern among adult Latinos about the kinds of information found on the Internet. Some adult Latinos' reluctance to use the Internet is linked to the "bad stories" that they have heard. In their parental role this is reflected in an interest in filtering public computers used by children. There are different views on this—on both the wisdom and the efficacy—which the study informants from libraries noted. Yakima City is, however, among a minority of jurisdictions in the US who have given up federal funding to retain the local right to filter public-library Internet connections.

Newspapers were another identified area of interest—especially in Spanish. An explanation from a young Latino/a informant offered insight into why, in addition to current newspapers from their home communities, newcomers from Mexico want current US information:

> *It's not that people just want to know what's happening in Mexico; they also want to know what's happening in the US, and they want to know how those correlate, what's in common there. "What can we find there that applies to me?"*

My findings suggest that the dialectic within this observation plays out not only around what is happening, but also in the way that things are done, by whom and with whom, and all the other layers and variations. Similarly, the interest in correlating the commonalities that might apply would also extend to identifying differences and distinctions that might or might not apply or might or might not be perceived to be applicable. As a Latino/a informant noted:

> *Nobody checks Danielle Steel out. We've got a few Danielle Steel books that are translations, and maybe they've been checked out maybe twice or something. But yet Sandra Cisneros or Isabel Allende, those go because that's what they want. They want to associate. This is a Hispanic.*

Although there is interest in improving spoken English by using film or video, there is also interest in reading adult literature in Spanish that is authored by Latinos. There is no interest in the world and the perspectives reflected in the work of Danielle Steel—even when it is translated into Spanish. Rather, the perspectives of Cisneros and Allende, who are successful American writers of Latina heritage, are of interest.

Dealing with the establishment. The findings also identify interest in forms and assistance in dealing with government agencies. An identified advantage of being in a smaller town is the knowledge of who in the community can offer assistance. As one informant observed, Spanish speakers ask for

> *forms and, oddly enough, help in dealing with bureaucracies. ... So if I can't help them with what form you need to apply for this and that, I know somebody who has done it. And then I can say, "Wait a minute. Talk to this lady."*

Over the course of this study an area of expansion has been the filing of government forms online. Another informant gave an example of such use to apply for unemployment benefits. Clients' stress is addressed by showing them how

> *to tap into the system and realize how much easier it is: ... "You can come down here, and we can do it electronically." ... People come in and they say, "Well, I've been calling and calling this number in Washington State. This is the Spanish-speaking number for my unemployment, and nobody answers the phone, or it's busy all the time." And so we go and we help them register online, and they get their checks. I mean, it's that kind of thing—like, "Oh, this is what we do," so then a whole bunch of people come in: "This is how you do it." But nobody told them that at the unemployment office.*

And, as indicated, once one person sees the benefits and realizes how easy it is, this information is rapidly transmitted by word of mouth. The speed and effectiveness of the Latino word-of-mouth system was a theme in the study findings. In smaller communities it is a two-way street, with assistance given and received.

My analysis identified three broad areas of interest in information: job information, practical and self-help information, and community and agency information and assistance. The study also highlights those areas in which clients ask for information or assistance and those in which they may be cautious. Some informants noted that, in areas related to health or sexuality, for example, the language barrier can compound the potential embarrassment. If a staff member does not speak Spanish and might have to rephrase the question, the potential for embarrassment is heightened. The analysis also suggested that an associated factor is whether the client knows and feels comfortable with the staff member.

Client Learning Priorities

The thematic analysis revealed two primary learning interests. The first, learning the computer, is common to rural patrons in general and, at least in part, reflects the rationale for selecting the sites. For some the learning need was specific to setting up and using an e-mail account. E-mail as the motivation for learning the computer applies across the wider client base. The informants identified learning English as a second language as a priority for Spanish speakers. These are two areas in which the findings reveal the potential of empowerment. They perceived English capability as empowering clients in dealing with the wider community, and particularly with the establishment. The empowerment potential in learning the computer is in doing something that they did not think they could.

English-language capability. Adult Spanish speakers are highly interested in English-language capability. An identified motivation is to meet the citizenship-examination requirement. The high loss rate in some libraries of audio and video resources for learning and practicing English is an identified indicator of the perceptions of a strong level of interest in learning English. Movies are another video resource used to learn English. This use became evident in one library only after clients advised a Spanish-speaking staff member that they are not interested in the Spanish-language movies that had been purchased for them; they want the movies in English because they are trying to learn English. Another informant noted that *"I do get a lot who are taking ESL classes, and they've asked me not to speak in Spanish."* And women taking ESL have said *"they'll try to get the kids to talk to them in English because they spend a lot of time in the evenings at home. And if you don't practice, you lose it."* Another informant reported that an older relative *"doesn't speak very much English but understands it all. A lot of the people are like this. English is a very difficult language to learn."* One informant observed that learning English is a long process:

> *You have to go before an INS interviewer and so on, so they did have to learn English. And many of them did, and they became US citizens. But many, many more did not, but they were in the process of slowly but surely learning English to pass the test and become naturalized.*

An informant observed that in one Yakima county locale with a large Hispanic population, across the group as a whole,

> *maybe twenty-five or thirty percent speak Spanish at all. And I would say less than fifteen percent speak Spanish only. Many people are where they have broken English, and many more people have such a lack of confidence that they don't realize how well they speak English, and we have to kind of tease it out of them sometimes.*

Even though these adults may understand English, they are hesitant to speak. For some, *"speaking Spanish helps them feel a little bit more comfortable."* In an area with more recent newcomers, a generational divide is evident in that *"most of our Hispanic patrons are monolingual—the adults. The children are almost eighty to ninety percent bilingual."* However, based on the experience of previous generations, a Latino suggested that *"by the time they reach high school and become juniors and seniors, they will no longer be speaking Spanish. Or they will be speaking Spanish, but very limited Spanish."* Indeed, an Anglo informant recalled that many students in Yakima City in the 1970s and 1980s who were second-, third-, or fourth-generation Mexican-American often did not speak any Spanish. The same informant recognized the empowerment potential of learning English, but hoped that this latest group of Mexican newcomers would retain both of their first languages:

> *What I would like most is to figure out how to empower them so they could take advantage of the things that they wanted. And I think being able to speak English empowers you in this country. I think English definitely improves your ability to take advantage of things in this country. ... I don't want people to lose their Spanish. I mean, I think it's a great thing that everybody can speak two or three languages. And in the case of our most recent immigrants, I think they're all going to end up speaking at least three languages because they're all coming with at least one native dialect—one native Mexican dialect.*

The dilemma is the same one that underlies the global tensions around language loss—a tension between the known probability and the hope that learning English will not result in the loss of the mother tongue and the culture that it represents.

In the responses from older Latino respondents, the analysis revealed concern over the loss of Spanish-language capability. One Latino/a informant who grew up bilingual observed that in his or her parental family, with three generations living together and speaking both languages within the household, *"it worked like a combination, that you could go back and forth between the two languages, so it was never a problem."* In their own household, however, *"our resolve was that our children will speak English first and then Spanish—and that was a disservice to them."* In contrast, younger Latinos did not express a sense of loss. One observed that *"I do see it happening, but to what extent I couldn't say."* Another younger Latino identified emotional tensions connected with learning English:

> *People so much want to be who they are, and being connected to their culture is so important in maintaining some sort of identity and positive self-esteem. Learning English is just like any other. When you're a solid individual taking on additional things, it doesn't seem that big a deal; whereas if you're busy trying to suppress and deny and forget—you're being denied who you are—then I think that makes a big difference how you navigate in this country.*

Computer capability. Those who offered instruction observed and class participants expressed an excitement that participants perceived as empowering:

> *To really take people who don't have any [computer] skills whatever and to empower them to be able to start doing these things themselves is kind of where the need is. I see here once people do get over that first hurdle, then they're excited about it. I mean, they've done something they didn't think they could do, and it excites them.*

This sense of accomplishment was identified in the findings. For some users interest in learning the computer is specific to setting up and using an e-mail account. The non–English-speaking informants' perceptions were that the use of e-mail is primarily for maintaining contact with family and receiving pictures via e-mail. Other uses for e-mail that they mentioned include entering into an employment contract, getting credit information, and making travel arrangements. The findings reveal that "learning the computer" is something that raises fears or *"just that uncertainty—the mystery—when you hear the word* technology.*"* The findings identify access to Spanish-speaking staff as particularly important in learning situations, which is reflected in requests and even waiting lists for computer classes in Spanish. An informant observed:

> *People may be able to speak English, but they're more comfortable learning in another language; and, in fact, they would prefer to get technical information in another language. And I think that if we can do that, I think we should accommodate that.*

Some of the women who have attended the computer classes that the Migrant Centers offer told the informants that their objective was to acquire the skills to move from a field job to an inside or office job.

Observed Information Streams and Learning Practices

The importance of word of mouth is one of the themes identified with regard to the information flows that are significant in rural communities, to Latinos, and to Spanish-speaking agricultural workers' Radio KDNA. The second is the importance of outreach and staff networking among themselves and across the wider community, and the third is shared learning and free classes.

Word of mouth. The findings identify word-of-mouth as a fast and efficient information channel that is particularly significant within the Latino community. The informants characterized it as very *"significant; it's the natural way the community functions."* They gave examples of how the referral system works:

> *For instance, I'll go and speak to a group and they come in, and there will be a few that get their library cards. ... And maybe that afternoon, by word of mouth they'll bring somebody else. ... Word of mouth is good. Yes, I've seen a lot of that.*
>
> *Every time I get a chance to talk one on one, ... they've all kind of recruited somebody. So they'll come in and they'll say, "So-and-so came in and you found this book for him, so can you find something similar for me?" Or "So-and-so came in and you helped him set up an account. Can you help me out?" So, yes, word of mouth is very, very effective.*

The informants perceived the referral system as responsive to good service and service delivered with courtesy:

> *Once someone comes here and gets something and they're happy with it, then all of a sudden—even within a few days or even that day—more people come in asking for the same thing, so you know this talking is going on. And so ... especially with the Hispanic population, this is your best way is to give good service.*
>
> *I think that's probably one of the most important things. I mean, so much that the office just revolves around it. ... And that may not always be that comfortable for some folks, but just the idea that "Yes, I know them and they do a good job," or "They ... treat you like a person; they don't look down on you." I think that's really important for all of our groups that we work with.*

The informants' perceptions and their array of examples are strong indicators of the effective and speedy flow of information across social networks. Word of mouth is also linked to small communities in which *"everybody knows everybody. So usually some good, some bad, but news travels fast in that people connection."*

My findings reveal that Spanish-language radio is an extension of the Latino word-of-mouth network. The findings reflect the channels that public-access sites use to promote their services; the reason for using radio was captured in the words of one informant:

> *We use the Spanish-language radio because, like I say, they don't read, won't read, don't take the time to read, or just cannot read. So word of mouth in this community is very large. And the radio is word of mouth—essentially that.*

The radio channel of choice to reach agricultural Spanish speakers is KDNA:

> *Where you want to reach the true low-income, rural Hispanic, that's where KDNA comes in—the public radio station, and it's a Hispanic public radio station, nonprofit. It's Radio Cadena. I don't know if you've heard of it. It's KDNA in Granger. It's been around for—I don't know—30 years or so.*

Radio is the medium of choice even for organizations with an advertising budget. Other media that they use and that are available at no cost include local newspapers: *"They're always willing to work with us; signs in the Grange Hall, bulletin boards at the daycare centers and the churches."*

Radio Cadena (KDNA). My findings identify radio—particularly Radio KDNA—as an extension of the Latino word-of-mouth information network in the Pacific Northwest. KDNA was established in 1979 as La Voz del Campesino and has been instrumental since that time in educating farm workers and advocating on their behalf. Situated in Granger, the station is a legacy of Chicano community activists who called on their social network to tap into the pockets of expertise needed to set up a public broadcasting station. It was the first radio station to provide Spanish-language programming in eastern Washington. The mission of Radio KDNA (2003) is to

> direct its efforts as a minority public radio station in response to the cultural and informational isolation of Hispanic/Latino and other disadvantaged communities. Radio KDNA will produce quality radio programming to help such communities overcome barriers of literacy, language, discrimination, poverty, and illness. In

> this way, KDNA will empower these communities to more fully participate in our multiethnic society. (The Mission section, ¶ 1)

The parent organization of KDNA is the Northwest Communities Education Center. With a board of directors who represent its listening community, KDNA exemplifies Vargas's (1995) goals for participatory media. Part of the Chicano legacy in the Pacific Northwest, KDNA thus represents a unique entity that impacts information flows and the Latino community fabric in the Yakima Valley. At the time that I collected the study data, several commercial Spanish radio stations emerged in the Yakima Valley. This change came about as a result of technology and regulatory changes that altered the economics of rural markets. KDNA is embedded within the Latino social fabric of the Valley through a long shared history.

In addition to broadcasting, KDNA is involved in multimedia production that includes *fotonovelas* and video productions. The *novela* is a multimedia vehicle used throughout Latin America to convey information on social issues as a story or drama. Social life in Mexico is often organized around the televised *tele-novelas.* In comic-book format, *fotonovelas* are widely used to reach low-literacy populations. Indeed, the Oaxaca state government has used this format to distribute information on the risks inherent in illegally crossing the border (Ferriss, 2003).A KDNA video *novela*, set in the Yakima Valley, includes subplots that address such issues as drunkenness, teen pregnancy, and exposure to pesticides.

> Print versions of *novelas* use photographs (*fotonovelas*) or comic book style drawings to illustrate the action of the plot. They are designed to reflect the experience of Hispanics and Latinos, and to sensitively encourage health behavior change by showing the honest real-life experiences of the characters and the effect of health decisions on their lives. (Radio KDNA, 2006, ¶ 2)

The *novelas* bring life issues and societal changes into the Latino home for dialogic sense making within the family. The *novela* genre has a long history (C. Rodríguez, 2001). More recently, the *telenovela* genre has migrated from Mexico to become an international phenomenon.

Outreach and partnerships. The importance of partnerships is another theme in the study findings. The informants gave numerous examples of a wide range of partnerships in which they and their organizations participate. Some are formal partnerships, but many are informal and related to personal or volunteer activities, such as church-related activities. Some partnerships are short-term event or project partnerships. Others reflect ongoing longer term commitments. Among the most frequently noted community partnerships are those with other agencies or volunteer groups that offer family support services; they include schools and social-services agencies. The partnerships relate to the entire community and are regarded as important *"because a lot of people don't know we're here."* They are thus seen as especially important for newcomers:

> *You have to be out there in the community all the time, … and you have to work with existing organizations like the schools and the hospitals and the health centers—the places where these people already are—so that they can see you, and you can be there and you can understand what's going on.*

The informants also emphasized the importance of partnerships for staff and the effective utilization of limited staff resources: *"So outreach is our networking; it is our buddy system. It is our not-what-you-know-but-who-you-know. And once again, there's so few advantages to living in a rural area, and that's one of them"* and *"Oh, that's critical. … You need to maintain that connection, that social network of other organizations or agencies or individuals. And being able to share—share what you have as well as hearing from them."* Word of mouth and networking are thus seen as mutually beneficial and reinforcing.

The theme of institutional outreach goes beyond partnerships and promotion of onsite services. In terms of learning services and support, the informants used such terms as *learning center* and *storefront educational center.* One proposed *"more outreach. We need to get out of the library and into the communities."* Another noted that *"these are community computers. They were given to us so that we would have them available for the community. … That means us going out and finding the people who don't know how to use them."* Taking this a step further, and in keeping with family-centered learning, an informant proposed taking the computers and trainers to the learners.

My findings identify a range of institutional partnerships and informal connections that are embedded within Yakima Valley communities. A number of the CTC partnerships are with schools. Through these partnerships parents have access to computer labs in the schools. Some elementary schools require that students obtain a public library card, which in turn requires the parent's signature. An informant gave an example of a father of a young Latina who went in for the required card with the expectation of a fee. Adults introduced to libraries through ESL classes are also introduced to language-learning resources and bilingual children's resources. The study data identify community partnerships and links as networks important to the sharing of expertise and community resources. For libraries and CTC sites, recognition as a partner that serves the Latino community is important; moreover, this requires staff involvement and outreach to the community in the community language (see also C. M. Bell, 2002; Fisher, Durrance, & Hinton, 2004; Rizzuti-Hare, Cavazos, & Garcia, 2002; Sarling & Van Tassel, 1999).

Shared learning. The theme of shared learning emerged at multiple points in the study findings. The informants commented on it, and it was evident in the study observations that it is not uncommon to see peer groups and parents and children learning together: *Either they'll ask for help or they'll get on the computer with their kids, sit down right next to them, and share the experience with their kids."* This is also evidently occurring at other locations:

> *You'd be surprised—I was surprised—because some of these people know quite a bit about computers. It's because of their kids. They say, "Oh, yes, Internet, Internet. Sí, sí, sí! They know more than I do sometimes. Sometimes they don't know what some of the words mean, but they know how to at least surf.*

The informants also observed shared learning among adults, such as when different members of a family or peer group seamlessly attend individual sessions of a multiclass course. The perception is that what one learns is shared with the group because they sat in without any ado. Another example is the case of a young man who, after attending an introductory class several times, subsequently passed on his newfound knowledge by training others at his local church. The importance attached to becoming proficient enough to give back is underscored by the fact that it was a two-hour bus trip each way for each session the young man attended. Transportation is a widely recognized barrier to onsite computer use and class participation.

In keeping with outreach, small-group, and family-centered learning, an informant proposed taking the computers and trainers to the learners:

> *Actually, I would take a section of town and provide them with computers, which are the central element. I would hire people and train them and say, "I'm going to give you this whole block, and I want you to go in there and provide training on*

> *how to use a computer, but work with their schedule, ... as long as you cover your block and you have visits with the families and schedule training with them.*
>
> *Or you can do a group in somebody's home or maybe in a church, wherever it's easy to get to. So first we have to have people who are very flexible with their time, and they go in there and do the actual training with small groups and do individual training up to a certain level.*

Although not home based, a similar approach was taken in Granger by using 4-H Webwizards as peer teachers. Another site had onsite volunteers from the Ameritech Corp as peer tutors for a short time.

Agricultural Information. The interview data included some connections to agriculture. For example, when I asked about information requests from farm workers, one informant observed, *"A lot of medical questions. A lot on, for instance, chemicals, sprays. This farmer wants me to use this spray: Is it safe? If I combine this chemical with this chemical, would I be safe?"* An example was of a friend who *"would come in with all kinds of things. He'd write everything down and then ask me."* An informant remarked that farmers have their own sources, including their own associations. Another identified an initiative targeted at the Latino farm population. A group from Seattle had designed a Web-based interface to access *'map soil data, weather information—just a huge amount of data that pertains to farming."* The group was interested in offering training sessions to small farmers or their representatives. A young woman at the Sunnyside farm-workers' office introduced me to MapQuest and gave me a printout of detailed driving instructions to a Seattle address. This use of GIS was reinforced in an example of the practical and immediate information requests that library staff receive:

> *It's "I want to know how to get to XX County ... because that's where my job is tomorrow at eight o'clock." Or "I've got a job interview at the XX truck stop, and where is it?" "Where's this street? How can I get there?"*

Another informant emphasized the wide range of IT use across the farming community and noted that *"there are certain programs that are very sophisticated for the large producers or the growers. They have GPS in their fields and things like that, and then they have their little palm pilots."* An informant described the apple growers as a particularly sophisticated group and gave the example of horticulture faculty who *"do a number of meetings with the camera on the computer where they have folks from Wenatchee and Tri-Cities and Prosser and Yakima together—both the faculty and the clientele producers."*

The study interview sites did not result in thematic findings with respect to agricultural information or small-business information. However, I anticipated this because such information is the focus of alternative sites such as the Rural Community Development Resources (RCDR) Center in Yakima City, which is set up to serve the Latino population of central Washington. The Center provides training and assistance to support Latino entrepreneurial initiatives. The RCDR's work with Latino farm owner-operators provided the context for this case study and for my informants' knowledge of their rural Latino library patrons as part of the wider Latino community. The Latino owner-operators had completed an RCDR survey of learning needs that resulted in the development of a series of computer-related workshops. A contract staff member who, in addition to having an IT degree and experience, is fluently bilingual, developed the courses in-house. The sessions address such topics as the purchase of a home-business computer, software, hardware, and basic maintenance. I attended two sessions in the computer lab at the Prosser Agricultural Station, some two hours south of Yakima City. The first session focused on typing skills and used the Mavis Beacon tutorial. A session some months later introduced the Quicken accounting software. I was surprised at the speed and relative ease with which the participants advanced their typing skills and observed growing confidence as they worked through the tutorial exercises with the instructor. The three-hour evening sessions attracted attendees from across the extended Valley. The intergenerational make-up of the group was an observation that was reinforced at public-access sites. A number of participants were related, and it was not unusual for different family members to attend the various sessions and then pass on what had been covered. Through observing and providing some assistance in these RCDR sessions, I had a greater appreciation for the user categories framed by the interview data, particularly the 'self-reliant' user who is developing a pragmatic applied computer skill set (see Appendix C for historical context and current exemplars). This brought out a fourth category alluded to in the interviews: practitioner or professional. In addition, this observational data reinforced key themes derived from the interview data.

Summary

The previous sections presented the study findings that resulted from the thematic analysis. The findings suggest information priorities and learning strategies of adult Spanish-speakers who use public-access computers in the Yakima Valley.

Reflection on the themes and their relation to the study question led to an aggregated image of Spanish-speaking users of community computer-access sites as individuals who probe and explore information borderlands to identify navigable pathways with resources and assistance that can contribute to the goal of mainstream functionality. This functionality centers on such things as passing the citizenship exam, getting a job or a better job, and dealing with the establishment. For all immigrants, gaining an operational understanding of various groups and agencies in their new setting can be a stressful and time-consuming activity. This stress is compounded for those with limited supports such as money, a local social network, or English-language capability. These stresses accompany the need to support their families while learning new systems and new languages. In the context of this study and its focus on information flows, the term *borderlands* represents the diverse information grounds and socialization sites situated between the known and the unknown. For newcomers, the known is embedded within the social network or communities of 'trust'; and the unknown is embedded within the institutions of the establishment and the established.

The thematic analysis identified five findings with regard to the research question. The first finding is the information culture of sharing within the Spanish-speaking community. This is evidenced, for example, in the speed with which word-of-mouth referrals arrived in response to the help provided to friends or to a demonstration of useful services such as online form filing. The second finding is the family-centered orientation and related interest in family-friendly social spaces—a safe socialization site. This is demonstrated in the inter- and intrafamily diffusion of information and shared learning activities and reinforced in information interests that center on anything for the family, particularly support for the children and their education needs. The third finding is the information interests that center on jobs, on practical information, and on dealing with the establishment, such as, for example, information on citizenship status. The fourth finding is the capability interests that center on learning English and learning the computer, particularly for e-mail or in relation to improved job possibilities. The fifth finding, the multimedia orientation of information and learning, is evidenced in the effectiveness of both word of mouth and radio as information channels for outreach and communication and in the preference for video and other media resources for learning in contrast to print.

The thematic analysis also brought out three client categories that can be framed as getting the lay of the land, being willing to ask for assistance, and becoming self-reliant. A sense of trepidation was evident among some initial entrants to the community computer-access sites, whereas for others the initial visit, led by the head of the household, had an air of reconnoiter. Still others arrived with an expectation that they would be able to access computers, courses, or assistance. The second subgroup were those who had passed through the getting-acquainted stage and had some awareness of what was available. They now knew that no costs arose from access to the resources and services, and they had a level of comfort with asking for assistance from staff. The *personalismo* factor was evident when they framed requests for assistance; for example, "You did this for my friend; can you do it for me?" Because they saw libraries as part of the establishment, such assistance might relate to dealing with other agencies or agency information. It could also extend to assistance with the tacit knowledge embodied in rules and forms—knowing what one is *required* to do in contrast to what one is *allowed* to do. In the library settings the third Spanish-speaking client category included the self-reliant—users who come in to access the known services or types of resources; for example, to use the computer or make a photocopy. The working adults tend to have information questions that are pragmatic and immediate. Others, more often in the nonharvest periods, come in on occasion or regularly to explore the resources at a more leisurely pace. The Latino family-centered use and shared learning among peer and familial groups is evident across all client categories. These client categories were the focus of the interview questions.

The thematic analysis revealed several findings pertinent to community-access sites. The first of these is the evident contribution to self-confidence that results from learning to use a computer, even if it is simply for e-mail. This finding is not specific to Spanish speakers, but also includes novice computer users. The second finding is that CTC and library staff have the potential to act as bridging or weak links to the social networks of newcomers—particularly if the staff member is of the community or is bilingual and bicultural. With their direct experiential knowledge, staff members in smaller communities, or as members of various community groups, are able to make meaningful referrals to individuals. The analysis suggested that institutions benefit from the volunteer commitments of staff. Many of these activities are carried out through churches, public health clinics, and other community groups. Others arise through quid pro quo exchanges among friends or acquaintances who are also part of the various subgroups, including the Latino network. Spanish-speaking staff in service organizations also draw in newcomers engaged in the process of determining what that institution might offer in terms of daily-living priorities. Furthermore, as revealed in the data in this study, these staff members are often called on to assist in providing information and assistance related to the wider array of institutions and agencies. The staff might also find themselves called upon to address such disparate tasks as dealing with telephone bills or translating correspondence—both official and personal—and to provide the type of support that can come from mentors within the social network who have translation capabilities and tacit experiential knowledge. The Latino informants in this study, usually mentioned such support in passing and framed it as "giving back" to the community. This is a service orientation from which the organization derives tangible benefits, as evidenced in the outreach partnerships. The study data brought to light in this regard that the giving back and family time commitments within the Latino community result in a distinctly different sense of the concepts of leisure time and volunteering.

A third finding particular to public library sites is the linking of virtual information with alternative formats. In terms of information, and particularly government forms, clients who are shown an alternative approach that makes life easier are receptive to using all formats, ranging from print to Internet. For those who are not familiar with the Internet, this often serves as an introduction. For those who are familiar with surfing but have limited information-mining or information-filtering skills, this models higher-level skills. And for youth, who often see the Internet as the only source of information, it broadens their repertoire to include print and recognize some of the advantages of that format.

The next chapter situates these findings in relation to the constructs outlined in Chapter 2.

CHAPTER 5:

INFORMATION, COMMUNICATION, AND COHORTS

The previous chapter outlined the study findings on Spanish speakers' use of public-access community technology sites in the Yakima Valley. In this chapter I relate the study findings and thematic analysis presented in Chapter 4 to the conceptual constructs outlined in Chapter 2. The chapter also proposes the notion of an *information commons* model, which situates public information as a resource that falls between the insider knowledge and information flows of institutional and relational communities. The information commons encompasses the contested public arena of the cyber-world and social identities framed as consumer choice. The next chapter presents the study conclusions and addresses the research question outlined in Chapter 1.

Introduction

Two implicit assumptions underlie past discussion on the digital divide: first, that every individual should have access to the Internet; and, second, that lower levels of usage among minorities, rural households, and households with income levels below the poverty threshold indicate a denial of access. Policy makers contend that lack of access will limit human potential particularly in terms of socio-economic gain arising from participation in the workplace and the wider community. At the same time, researchers have proposed cyber-networks as an alternative to traditional social networks (Lin, 2001) or an alternative mode of development (Castells, 2000). My research question, which focuses on information access, led me to examine whether the ways in which policy makers have portrayed the digital divide and characterized lack of direct access do in fact match the reality and priorities of low-income Spanish-speaking households in the Yakima Valley. Specifically, I looked at adult use of public-access computers. This was necessary because very low income households are unlikely to own home computers.

Community public-access sites, or community-access points, had been identified as one of four critical variables related to establishing equitable access to information services (Bertot & McClure, 1998, 1999). Over the past decade national policy initiatives have provided public funding to community access points in order to extend Internet access and training to minimally connected population segments. Policy makers put these initiatives in place with the aim of extending the benefits associated with access to computers and/or the Internet. Initiatives in Canada, Mexico and the US utilized various programs and promoted them on the claim that the resulting increased human capital would contribute to local community development and, in turn, to national economic growth. Rural areas and the poor were identified as in need of these programs, such as, for example, the rural initiatives under the TOP initiative (US National Telecommunications and Information Administration, 2000). I chose to examine community access sites associated with CTCs or libraries in rural areas with a significant Spanish-speaking population.

To acquire an understanding of the Internet usage and priorities of Spanish-speaking clients, I interviewed individuals associated with these community public-access sites. I believe that their rich experience, contextual knowledge, and grounded perceptions have resulted in relevant and meaningful data. In the analysis and discussion that follow, I look first at the micro level of household use and activities and then at the macro level of policy initiatives designed to change behavior in ways that will contribute to economic growth and development. And last, I return to look at the individual and the process of adaptive change. I considered Spanish-speaking households as a group with a shared history and a cultural identity that has been shaped by an ongoing process of acculturation (Suárez-Orozco & Páez, 2002; Wallis et al., 2004) with a distinctive Pacific Northwest dimension (J. Garcia & Garcia, 2005). This cultural identity has much in common with the collective identity and subgroup diversity that exists within an organization (Schein, 2004).

In the previous chapter I noted that Spanish-speaking newcomers are navigating the borderlands between two core information networks—institutional and social. The formal or establishment network, on the one hand, tends to represent hierarchical and positional networks—work, education, and the state. The informal or word-of-mouth network, on the other hand, typically consists of the social identity network—family, kin and *compadre* or peer cohorts. My findings are clear that the major information conduit for Valley newcomers is the social network. The voice of Radio KDNA serves as a unique extension of this word-of-mouth network. Hence, newly arrived immigrants find family, the core community of trust, an optimum first line of engagement with the community followed by social-group volunteers and gatekeepers (Elliott, 1986; Metoyer-

Duran, 1993). For Latino families from Mexico the core community of relational trust is likely to expand first, to include the church as an organization of shared values, then the Latino community, next the workplace and schools, and, finally, community gathering sites where Spanish is spoken (Fisher, Marcoux, Miller, Sánchez, & Cunningham, 2004; C. Garcia, 2005). Among the community gathering sites, newcomers will find social service sites where information might be shared both purposefully and serendipitously (Pettigrew, 1999). Here, as well, processes of sense making may be initiated (Dervin, 1999; Dervin & Nilan, 1986). At the time of my study some Yakima Valley CTCs and libraries were known for reaching out to newcomers and had become recognized as gathering sites where Spanish was spoken.

Community Gathering Sites

My analysis of the community sites that provide public access to computers and the Internet revealed that Latino households proactively engaged in informal activities and processes of informing and learning. Even so, the study informants identified multiple barriers to service access and program participation for Latino families with children. Barriers included limited time, resources and transportation options. Along with language, such constraints add to the challenges of reaching beyond existing social networks and home media to access information and build their understandings and skill sets. Some Spanish-speaking adults were definitely stepping outside their technological and institutional comfort zones by using computers within community public-access sites. For others, the opportunity to use the computers provided a reason for utilizing the site, as was the case among Latinos in rural Missouri (Bala & Adkins, 2004).

My thematic analysis revealed that some of the priorities of Valley Latinos are, indeed, being met at community public access sites. These include the desire for family-friendly sites where parents and children were able to work together. Parents were able to assist the children with their schoolwork and access resources to support family learning. These findings are consonant with the findings of two urban studies: the first, in an area with predominantly low-income Latino households, among them a recent influx of newcomers from Mexico (Sarling & Van Tassel, 1999); and the second, a satellite virtual library set up to meet Latinos' priorities for family-safe sites and homework support, such as the Hialeah Public Library (McClure et al., 2002). These priorities are also consonant with the finding that enthnolinguistic gatekeepers in

California tended to visit libraries to meet their children's information needs (Metoyer-Duran, 1993). Immigrant families in North America—for example, the Chinese immigrant families detailed in Li's (2002) study—can have great difficulty maintaining an active role in their children's learning. Limited English language skills and a lack of understanding of the education system present barriers to these parents who often want to support their children's schooling. Given these circumstances, it is not surprising that community public-access sites that are family friendly and conducive to intergenerational learning are well received. They serve to facilitate processes that, in a culturally and cost-sensitive way, support the children's education. My analysis indicates that Latino newcomers seek to acculturate and become established in much the same way that other immigrant groups do—a process that has traditionally been intergenerational with parents and children learning from each other, such as, for example, occurred in the early Carnegie libraries (Van Slyck, 1995).

My finding of the perceived importance of shared family learning echoes the findings of Fisher, Marcoux, et al. (2004) identified in a subsequent study that they conducted at two CTC sites in the Yakima Valley—the locale encompassed in this study. The first, in Granger, is associated with KDNA radio station; the second, in Sunnyside, is associated with the Horizon organization. In contrast to my research, Fisher, Marcoux, et al. surveyed the primarily Spanish-speaking users directly, and their findings revealed four core benefits that included the ability to "teach their families or pass on what they have learned" and "help their children with homework" (Information Habits section, ¶ 1). They based their findings on responses from adults of whom 58% are agricultural workers who live in the same geographic area covered by this study. Their findings therefore validate a number of my findings with regard to the priorities of Spanish speakers and benefits of public-access community sites. This includes the importance that Spanish-speaking adults attach to the parental role in teaching and assisting their children with homework.

My findings identified an initial reluctance on the part of some adult Spanish-speakers to make use of library-based CTC sites. They hesitated because they were uncertain as to the costs involved and the extent to which they would be welcomed. As one library informant noted: *We are seen more as an agency of the government by patrons who are from Mexico than people who are native born here*. Thus, Latinos in urban settings (Sarling & Van Tassel, 1999) and in agriculture (V. Garcia & Marínez,

2005) may approach libraries with the caution and perhaps even suspicion accorded government agencies. These factors might, at least in part, explain findings that those least likely to use public-access sites are the poor and the less educated (Mossberger et al., 2003). A finding derived from my study provides perhaps a more significant reason that Spanish speakers are less likely to use libraries: Many Spanish-speaking newcomers do not realize that public library services are free and open to all. My findings do suggest, however, that once a comfort level is established, Spanish speakers can find the sites and their staff helpful. These findings also support findings that those more likely to see public-access computer sites as a community gathering place include the poor, women, and Latinos (Mossberger et al., 2003) and that Latinos tend to have positive perceptions of public libraries (Metoyer-Duran, 1993). These findings are further reinforced with regard to the Yakima Valley CTC sites, where, as Fisher, Marcoux, et al. (2004) have observed, KDNA is a place where people 'hang out.' Moreover, they noted that "parents were willing to allow their children to come to the CTCs because they were already familiar with the organizations providing the CTCs and had an established level of trust in these agencies" (Community Technology Centres section, ¶ 3). Spanish speaker's determination of whether or not to explore the potential of public community-access sites is thus influenced by perceptions of cost, welcome and trustworthiness.

In terms of daily life and government services, the highly class-responsive bureaucracy of Mexico is met with a generalized response of keeping one's head down to avoid attracting undue attention. This strategy, evident among Latino newcomers, has been heightened in the post-9/11 climate. As a young Latino/a informant noted:

> *It's actually something that has come up more and more since 9/11—I mean there always seems to be a backlash on immigrants but even more so now. ... If you are undocumented you don't want to go around saying that out loud. I mean that's taken more seriously than ever before.*

In addition, there can be confusion among documented Spanish speakers as to which services are available to them. A mature Latino noted that

> *our community sometimes doesn't go see doctors because they're afraid that if they go they might be questioned about their legal status. Sometimes the documented don't go for food stamps that they need because they're afraid of [questions] on their legal status.*

Trust, as it might apply in the context of the study findings, has been differentiated as either generalized, relating to people in general, or specialized, relating to particular institutions or known people. Trust in the Church or a particular representative such as the local parish priest is an example of specialized trust. In Mexico, the government, or the State, can generally be characterized as an institution that does not have special trust, most particularly among the poor and small landowners. Although there is respect for authority, a distinction can also be made between institutions or individuals of authority, such as, for example, trust in the Church and mistrust in the State, if the former is viewed as paternalistic and the latter as authoritarian. An authoritarian view can invoke police-state images and the crushing of any voice of protest or dissent. In the Latino culture a paternal view invokes an attribution of looking after the welfare of those within the group (see Mayo, 1997). The 'heads-down' response is also in keeping with a communication style that is nonconfrontational, or nonassertive. This study found that newcomers applied the criteria of trust and respect in determining whether or not to engage with service providers. An informant had observed that newcomers were 'respectful', while another informant noted that:

> *From the first time a phone call comes in, try to make sure that you're pleasant and try to address whatever issue comes in. ... It's even more important because you've got a state (un estado) Washington, I mean you've got some sort of governmental association. And that may not always be that comfortable for some folks, but just the idea that: Yes, I know them and they do a good job or they really try to, or they treat you like a person, they don't look down on you. I think that's really important for all of our groups that we work with. ... Their reception, as much as the information, is going to be conveyed to others.*

Thus, there is an expectation that respect will be accorded in both directions. Latino newcomers, however, are likely to disengage when they perceive service providers as disrespectful.

In navigating what I have described as the information borderland, Latino newcomers are faced with the daunting task of trying to ascertain the appropriate and least-cost access point to complex and unfamiliar service systems, and referrals can contribute to confusion and frustration (Dunne, 2002). In seeking to deal with these systems, newcomers, with limited understandings and language facility, might require assistance, including translation (Elliott, 1986). A library informant noted that staff members are often asked for

> *forms, and oddly enough, help in dealing with bureaucracies. ... [A staff member] knows how to deal with DSHS* [Department of Social and Health Services]. *And if she doesn't, one place where I can compensate is I know who knows. So if I can't help them with what form you need to apply for this and that, I know somebody who has done it. And then I can say, wait a minute, talk to this lady. Talk to Mr. Ramirez, talk to Mrs. Hernandez, they know, they'll tell you what to do.*

The need for referrals to other Spanish speakers who, based on their experiential knowledge, could assist was confirmed in the findings of Courtright (2005). In fact, Courtright identified assistance in gaining an understanding of the configuration and rules of local health care delivery systems as the key health information need for Latino newcomers. Indeed, newcomers are faced with a bewildering set of variables in trying to deal with a multiplicity of unfamiliar and complex systems, such as, for example, in my findings: *He just whipped out his phone bill and he said you know I'm having problems with this phone bill.* And as my informant also noted: *I don't know that an English speaker would come in with their phone bill to the library and have you fix it.* These needs are integral to all newcomer situations including, for example organizational newcomers who need to make sense of unfamiliar procedures and the associated unwritten rules (Ritti & Levi, 2006).

In this instance the Latino newcomers similarly seek to correlate what they do know with the local context. Their understanding of the new systems, however, may be such that they do not know the right question(s) to ask, a problem compounded by their not knowing the working language. The question as asked might very well fail to convey what is actually sought; and each question can generate a response that gives rise to further questions. In the Yakima Valley, Spanish speakers gain insight into and understanding of how to navigate these systems as they seek information and assistance; and, in turn, they share their insight and understanding with others in similar situations. As a young Latino/a informant reflected:

> *I'm thinking this is what is very particular to maybe not just the Latino community but to any immigrant community. I think it is that the Americn way of thinking is when you are learning something you are not necessarily learning to go and teach somebody else. You know, you are taking in the information and you are going to use it yourself. And I think in the Latino community we are so used to having to network, we are so used to having to dig our way through things; and then I think when people, once they have this information, it's: Oh yes, let me show you this.*

Thus, the journey toward self-reliance in an unfamiliar setting begins with seeking advice, assistance or information with regard to specific daily life situations which they can teach to others.

As evidenced in my findings, newcomers often seek an understanding of what is required to determine what is optional—where they have choices and the implications of those choices. In some instances they might be looking for the equivalent of an emergency-room triage nurse—a one-stop expert with the knowledge necessary to understand the situation and initiate the next step, or fill in a key piece of missing information. This iterative process is at the heart of Dervin's (1999) sense-making interview for librarians (see also Dervin & Dewdney, 1986). This perception would also be consonant with Fisher, Marcoux, et al.'s (2004) conclusion that "immigrants are seeking a particular social type, i.e. instrumental referral agents—to borrow from Gourash (1978) and Harris and Dewdney (1994)" (Future Research section, ¶ 3). The analysis of my findings, however, leads me to conclude that the longer-term objective evident among Latino newcomers is to build their knowledge base and increase their self-reliance. They are seeking to increase the range of credible and useful information sources to which they have easy access whenever and as required. In so doing, they build their understanding of the local context and their knowledge base, the base on which they draw to make informed choices and implement reasoned actions.

As my findings show the most important information source among Spanish-speakers in the Yakima Valley is the social network. The overwhelming preference for interpersonal information sources evidenced among the survey participants in Fisher, Marcoux, et al.'s (2004) survey validates this finding. My findings are consonant with those of Courtright (2005), who similarly found that the primary source of information for Latino newcomers was the social network, along with what was often serendipitous contact with helpful Spanish-speaking individuals in the wider community. The preference for interpersonal information sources has also been identified among ethnolinguistic gatekeepers (Metoyer-Duran, 1993) and organizations (Stephenson, 1998, 2005). My analysis of the study findings revealed that information credibility is related to trust in the information source, and with this comes a preference for the interpersonal information sources associated with the social network. My findings are consonant with homophily theory, which suggests that the first line of information consists of those perceived to be like oneself, and the second, those who are recognized as knowledgeable.

Trust is an essential element of all human interactivity. It is what overcomes our nascent fear of one another. It arises from expectations that arise out of each relationship and is built upon interaction over time. Trust is a state that reflects prior experience: The more persistently that the experience positively fulfills expectations, the greater the affirmation of a reputation of trustworthiness. Trust is a central construct of what causes information to flow between people or to be constricted. Thus the relational trust that exists between kin and peers, and that has been established and maintained over time, facilitates information-sharing and provides a basis for shared sense making and knowledge creation. A group culture reflects a collective identity that, reinforced by ongoing interaction, is associated with social capital as a collective resource available to members (Lin, 2001). This culture also reflects shared assumptions that are accompanied by a set of shared habits, some of which may arise from shared values. These habits and the underlying assumptions come to define what we ought to do, what we can do, and what we might do (Schein, 2004). The findings of this study reveal that Latino newcomers who seek to acculturate in a new setting find a disjuncture between existing habits and assumptions and those now required for functional adaptation. In their efforts to acculturate efficiently and effectively, it is those with whom they have relational links—and, as a result, shared understandings and a level of trust—who form the foundational information conduit. The poor can be particularly attuned to the need to develop risk-control mechanisms as a form of self-insurance. Trust reduces perceived risk, and social closeness can provide information that contributes to a higher likelihood of being able to identify an individual as good, responsible, reliable or trustworthy.

My findings are clear that the primary source of information is the social network—whether in person, via email or on radio KDNA. It is through the social network that the tacit knowledge of the established Latino community is distributed; and that is why the community gathering sites are so very important to newcomers. Courtright's (2005) finding of the importance to newcomers of what was often serendipitous contact with helpful Spanish-speaking individuals in the wider community reinforces the importance of the sites. The value of the sites for newcomers, I suggest, is comparable to the significance of the water cooler to initiating new contacts in the workplace. Some of those interactions might be with potential mentors. McGiveny (1999) identified an important prerequisite to embarking and continuing on a learning pathway: the intervention of key individuals who "inform, motivate, enthuse, encourage and advise individuals and act as intermediaries between them and education providers" (p. 26); or, in the context of this study, those who are key information providers. As my findings also reveal, through the provision of service, important information and teaching, library and CTC staff have the potential to become a useful or a bridging link in the social networks of Latino newcomers in the Yakima Valley. The public-access community sites are thus a public space that has the potential to make a difference in the acculturation process of newcomers.

Information Important to Daily Life

The processes of informing and learning are integral to becoming established. The previous section looked at the broad contribution of community gathering sites. This section examines their contribution more closely, specifically in relation to how newcomers become better informed in areas identified as important to daily life. I determined in this study that Spanish-speaking adults in the Yakima Valley were purposefully using community public access sites to address two needs: first, to become well informed, and second, to increase their capabilities in two core areas: spoken English and computer proficiency. The findings with regard to seeking to become well informed relate to three issues: (a) the lack of information or, more important, credible information upon which to take action; (b) the cross validation of information to avoid acting on misinformation; and (c) the need for information in or translated into Spanish.

My findings indicate that the social network has been a key source of information in the Yakima Valley, with the Latino grapevines being of particular strength. The interest in both learning to use email to communicate with family members and finding cheap fares for travel to Mexico point to the centrality of the Latino social network; however, when it came to topics of informational interest, jobs and employment were of primary concern. Other topics of interest included citizenship information and government and procedural information written in Spanish. Fisher, Marcoux, et al.'s (2004) survey of Yakima Valley CTC users identified "access to Spanish music and travel information" (Community Technology Centres section, ¶ 2) as core interests. Those surveyed indicated that 'access' to Spanish music and travel information was important, which suggests that these are areas in which users, once they acquired access, did not need further assistance. This could explain why my data did not mention music. In contrast, the users identified the provision of credible information as key in areas key to daily life, which suggests that in other areas information-seeking assistance is germane. The strong need for information core to daily living to be in Spanish, a need among the foreign born that extends over decades, explains somewhat why Radio KDNA continues to be valued as an extension of the Yakima Valley Latino social network. The ability to share information and communicate in a common language is central to the role of language in defining cultural communities and their networks.

Need for Information in English and Spanish

My findings also identify a need for English translation, an area in which bilingual staff might be called on for assistance. It was in relation to this kind of assistance that this study identified the potential for staff to be viewed as individuals able to provide strategic suggestions on or assistance in dealing with the establishment. This need is reinforced by Yakima Valley CTC users who identified a core benefit of the CTC sites as a means to "communicate and translate important issues into English" (Fisher, Marcoux, et al., 2004, Information Habits section, ¶ 1). My findings were similar: Patrons used the library venue and its staff to practice communicating in English (see also Sarling & Van Tassel, 1999). In addition, the clear preference for receiving information or instruction in Spanish indicates a need for available information in Spanish and for Spanish-speaking staff. Many Yakima Valley newcomers are not comfortable expressing themselves in English and prefer instead to communicate in Spanish. As one of my Latino/a informants explained: *I am communicating with you in English. I would prefer to communicate in Spanish because I think I could be more eloquent in explaining some things in Spanish. But, nevertheless.* For those engaged in learning situations, a tendency to think in one's first language compounds discomfort and increases a reluctance to seek clarification. This conceptual practice may continue for some length of time and may be a more significant hurdle for seniors. A survey of Latinos in three metropolitan areas asked respondents in what language they would prefer to receive insurance information: 72 % of the foreign-born who had lived in the US less than 10 years preferred Spanish, and among those who had lived in the US for more than 30 years, the figure was 44%. From the perspective of English-language preference, 2% of the newcomers and 21% of the long-timers preferred their information in English (Lee & Torres, 2005).

Framing language choice as a preference, however, suggests that such considerations are simple consumer choices on par with the decision on which of two sweaters one might wear on a particular day. This might indeed be true for fluently bilingual and bicultural individuals, but it does not represent the reality for many Latinos in the US. In the Yakima Valley many third-generation Latinos are unilingual English speakers. The research of Lee and Torres (2005) on stated preference for language in the receipt of insurance information, in fact, reflected this generational difference: "60% of first generation Latino consumers indicate that they prefer Spanish, while only four percent of third and later generation Latino consumers prefer the same" (p. 20). Moreover, "88% of third and later generation Latino consumers prefer to receive information in English" (p. 20). The sharing of information in Spanish is core to what makes Radio KDNA the voice of the Latino community in the Valley, and its educative mission and cultural sensitivity in its broadcasting have gained it the respect afforded a 'trusted advisor'. KDNA is there for newcomers who arrive with no social network contacts and remains part of the Spanish-speakers' social network when grand-children no longer speak Spanish.

Job and Employment Information

The informants in my study identified job-related information as a key area of informational interest in rural areas—particularly areas of low income and among the general population, including not only Latinos, but also the general population. This was affirmed in the findings of Fisher, Marcoux, et al. (2004) in that CTC users identified a key community benefit of these centers as the provision of "credible and important information that would be of use to them in their everyday lives. This information included searching for higher paying jobs" (Community Technology Centres section, ¶ 2). An earlier study identified employment as an area with high potential for the use of online information among low-income households (Spink & Cole, 2001). As well, a subsequent study attributed the greater interest in responding to online employment information among African Americans to the lack of a social network to access for job referrals (Mossberger et al., 2003). As Julien (1999) attested, the relational connections that underlie social networks offer a measure of credibility based on the trustworthiness of the information source, a factor that affects the usefulness of career-decision assistance. In looking at the kinds of information that young people sought to help their career decisions, Julien found that her participants were daunted both by the volume of information needed and the fact of information scatter. For newcomers who, like youth, lack experience with the local job market, these two factors underscore the benefits of the social network in filtering, consolidating and validating job information.

Online job information now available in Washington State through WorkSource directly addresses the problem of information scatter by providing enhanced job-information delivery. This solution is reflected in the recommendation in Chapter 6. Moreover, Latino newcomers may not appreciate the volume of information available or know how to deal with it effectively, how to make sense of it in relation to their situation and the local job market. They might also be influenced by the youth in the family: "Younger Latinos more frequently consider the Internet as the most reliable source of information" (Lee & Torres, 2005, p. 19). Indeed, informants in my study have observed that youth are often surprised that there are alternative sources to the Internet. Given this expressed interest in job information and the expectation that it can be found on the Internet, researchers would be well advised to conduct further research to develop a more nuanced understanding of individual objectives and expectations and how they might be implicated by factors such as age or stage of career. In addition, because these sites have become ever denser, rather than providing easy entry points, they can contribute to cognitive overload, as has been the experience with community information web sites.

This interest in both credible and online job information, as indicated in the findings of this study, is likely to reflect an appreciation for ways that the social network can facilitate the accessing, decision making, and planning necessary for employment success. Newcomers with limited links to the established local social networks will also lack local advisors. Social network referrals too are important in the hiring process, where they can provide personal endorsements that serve as a screening function for employers and a mentoring function for employees (see C. Garcia, 2005; Ordóñez de Pablos, 2005). Equally important, social networks may well include trusted career advisors who can offer strategic advice based on knowledge of the organization, the individual, or both. Such advisors might include friends who can and will offer suggestions or forthright feedback as ideas and possibilities are initially explored (see Stephenson, 1998, 2005). Ultimately, it comes down to making what can be some very difficult choices, to taking a chance, to making a change with no certainty on where that path will take one. It is about the processes of adaptive learning and, perhaps more difficult, unlearning (Schein, 2004).

For those Latino households in the Yakima Valley who are experiencing acculturation, the uncertainty associated with job changes can heighten existing tensions. For Latino women, in particular, Prins (2001) observed that change is inevitable. The question that arises is, Change to what? Even among successful midcareer American women who desire alternative job or work arrangements, Ibarra (2005) found that the career-transition processes of self-inventory and value prioritization require three to five years. Ibarra asserted that women who are redefining their future and reworking their identity "are simply not equipped to make these deeper changes until we come to understand what they really mean, not as concepts but as realities that define our daily lives" (p. 212). My data revealed that, for some in the Yakima Valley, learning to use the computer was considered a necessity to gain a competitive advantage in the job market or simply keep up to avoid falling behind. In either case, time and effort are required, and individual value choices must be made. My findings identify time constraints as one issue that prompts a core value choice: Newcomers perhaps felt that they had to choose between work and social interaction with family to find time to also pursue learning. Because the former is a necessity and the latter has been, and continues to be, a high priority within the Latino culture, such a choice can be extremely stressful. And for women who are seeking to transition from field work to office work, learning the computer is but one aspect of what will also involve acculturation to a very different workplace culture.

Legal Dimensions of Daily Life Information

Analysis of my data revealed citizenship status as an additional factor related to job and employment information. Work status can be as simple as legal or nonlegal status. Alternatively, it could be a question of having credentials that must be US certified or wanting to pursue training to obtain credentials. As a Latino(a) informant noted, *"I had a woman call me and say: I want to get into a nursing program. I got my GED in California. The only thing is that I'm undocumented."* Another example from the same informant was *"In my home country I was a math teacher and I'd really like to [get] established'.*

> *So what they're really asking me for is a way around that. ... I mean that's what and I'll sound passionate about it but it kills me to know that a person who has these skills, who is here, who wants to provide a service, to be useful in the community and to have them end the whole thing with: how can I get started, who do I talk to. And you have all these ideas and then towards the end they tell you: oh, but you know I don't have papers. So the idea of them being certified, the idea of them talking to any agency that might require any sort of formal documentation, the change from 9/11 is that people are not messing around any more.*

Even if the math teacher had papers, having foreign credentials recognized is not necessarily a simple question of 'How can I get started? Who do I talk to?' Moreover, becoming credentialed is also likely to involve taking additional courses. In terms of further education, financial assistance may well be restricted to those who are US citizens or permanent residents or who have status as a resident along with the appropriate visa. Such layers of differentiation according to citizenship status can be extremely confusing to newcomers and may well be outside the common knowledge base of the US born.

Even in such core areas as insurance and home ownership, one's legal status and the various related rules complicate information seeking and the acquisition of credible information. For Latinos who are seeking to get established, existing research has identified areas of confusion and misinformation that can compound a lack of information and has concluded that this serves as a barrier to both home ownership and purchase of insurance. Home ownership was an identified topic of interest in my data, questions included: *How can I afford a house? How can I buy a home?* In a survey among Latino renters in three US metropolitan areas, Lee, Tornatzky, and Torres (2004) found that "prospective homebuyers are often uninformed or misinformed of the various aspects of the home buying process" (p. 16). The researchers found confusion "about the legal requirements for opening a bank account, establishing credit, and securing financing" (p. 18) and "home buying and mortgage qualification" (p. 21). Furthermore, many of their respondents were "unaware of the fact that while it is illegal for the undocumented to get a federally-insured loan, it is not illegal to buy property in the United States" (p. 20). A number of these issues relate to the real or perceived restrictions that those who are not citizens face. These data underscore why Latinos would attach such importance to courses that contribute to citizenship attainment and to finding 'trusted' advisors. Similarly, although my data identified do-it-yourself law books as an area of informational interest, many of the questions that might arise concerning the legal issues involve more than a set of procedural steps.

Informal Adult Learning

The previous section looked at information and processes of informing. In the study findings these were integrally linked to informal learning. Processes of informing and learning are, in turn, integral to acculturation and getting established; they are instances of adaptive learning to effect these changes. This section focuses on informal learning in terms of (a) content of interest, (b) media and learning, and (c) cohort learning.

Content of Interest

From the findings I was able to derive a number of thematic learning interests, core among them enhanced English and computer capabilities. Analysis also revealed strong interest among Valley Latinos in do-it-yourself or how-to materials across a wide range of topics. These included: parenting, self-help law, baking, fixing the automobile, divorce, and child custody. These interests are similar to those identified in other studies of Latino interests (see Sarling & Van Tassel, 1999). They are also part of the core matrix of informal adult learning; in particular, the categories of home-related work and general interests that have been used in surveys of informal adult learning in Canada (see Livingstone, 1999). My findings concerning the topics of interest among Latino newcomers appear therefore to indicate engagement in purposeful learning because the vast majority of adult learning is informal—as affirmed in the Canadian survey and reinforced in British survey results (Selwyn et al., 2006). Such evidence suggests that the learning observed at community public-access sites represents but the tip of the informal-education iceberg. Much of this informal education, of course, takes place in the home. Moreover, in areas such as home and vehicle maintenance and credit management, this informal learning, although it does not necessarily result in increased income, does directly reduce household expenditures and/or risk and thus contributes to building the household asset base.

Media and Learning

In terms of learning, my findings reveal that Spanish speakers in the Yakima Valley are using various media: They are prepared to take courses, read books, watch videos, and use the Internet. The findings reveal among Spanish-speaking patrons of libraries a strong demand for audio and video resources. The learning of English was most closely linked to media, including the use of movies. My research thus supports earlier findings related to libraries and Latinos (Sarling & Van Tassel, 1999) and is consonant with the prominence of television viewing among Latinos (Macias & Temkin, 2005; Ramírez, 1997). As one study informant noted, in the Yakima Valley, *"Our families may be poor, but they all have a TV and a VCR."* The strong interest that Latinos in the Yakima Valley demonstrate in audiovisual learning resources suggests that their use of these resources supplements television for informal home-learning purposes. Indeed, as a recent survey found, "Latinos most prefer to receive information through personal contact, although television is also among the most frequently mentioned sources of information about insurance" (Lee & Torres, 2005, p. 22). Such mass-media use underlies Schramm's (1964) observation that we learn both consciously and unconsciously from the media and are unaware of how much we learn this way. Although the digital-divide initiatives focus on computer access and use, traditional media, as Selwyn et al. (2006) found in Britain, are the preferred choices of adult learners, even in households with computers. In addition, they found that computer-based learning is a very small part of the ICT or media component of informal adult learning.

My findings indicate a strong interest in free classes, particularly classes in computer use, the English language, and citizenship preparation. This is consonant with Livingstone's (1999) finding that working-class adults have a strong interest in further education. My findings on free classes, at least in part, reflect resource constraints. Moreover, these classes are taken on personal time and therefore decrease family time. A commitment to attend classes, even given this outcome, indicates a strong commitment to personal development. As noted in the study data, however, simply offering a free course is not a sufficient inducement for Latinos to attend; the content must also be of interest. But even then, the audience requires a further inducement. The presenter must have earned, through persistence and capability, credibility among the Latino community. For example, although there was considerable interest among Latinos in a free consumer-credit workshop offered in Spanish, it took a sustained effort over time to draw participants. Once credibility was established and word spread, the workshops generated advance waiting lists. My findings identify very pragmatic reasons for the inclusion of each of these core learning interests: computer use, English fluency, and citizenship preparation. Learning to use the computer, however, also seems to reflect an undercurrent of experimentation—perhaps viewed as a luxury or an opportunity afforded by the public-access sites. Indeed, Ibarra (2005) suggested that midcareer professionals who are contemplating a job change should take courses or training in a new area as a way of experimenting.

Among Latino adults, then, this interest in learning for personal interest and the use of learning resources, including media, reinforce my interpretation of the study findings: evidence of self-directed and informal learning in support of self-efficacy. This learning also indicates, at least to some degree, that Latinos are investing in their human capital to gain the benefits, both instrumental and expressive returns as identified in Lin's (2001) model. My findings also evidence the 'learning to learn' orientation that Schein (2004) identified as being essential to adaptive learning. An informant in my study noted that men sometimes characterized the Internet as a gimmick, something for the kids. This suggests that Latino men, in particular, are perhaps more disadvantaged if they have to experiment or play with new technologies at community public-access sites, since these are activities considered more appropriate to children.

Cohort Learning

A major theme in my findings is that of shared learning—specifically in family and peer groups. In relation to the computer, such learning appears closely related to relational connections that, at least to some extent, are evidenced in information conduits of both circumstance and choice. The learning dynamic in this scenario—the interplay of formal and informal learning—thus appears to parallel that of informal information networks within organizations. Formal information networks are hierarchically structured and bounded; informal networks reflect fluid reconfiguration. Much as the informal networks represent the iterative and dynamic grounds for idea circulation, the informal learning cohorts are the dialogic and dynamic grounds for creativity and innovation. These represent the social learning and innovation capabilities that have also been identified as critical to community development and sustainability. For example, one sees this in the construct of communities of practice linked to social reproduction through technologies of how we do things (Dobres, 2000). Indeed, initiation of change in technology is a recognized to serve as a change agent by giving rise to adaptive and shared learning.

Social learning with peer or practitioner groups provides some measure of trust as risk control, while at the same time building relational capital. This can be seen in the importance of social networks to learning for Latino newcomers to the workplace (Monkman, 1997a, 1999), for Canadian workers who are learning new workplace technology (Sawchuk, 2003), and for Australian farm families who are building business-management skills (Kilpatrick, 2002). Wu and Pretty (2004) also found that in the Chinese farmer innovation circles of Zhidan, the intrinsic dynamics and innovation potentials of the rural poor were evident in the informal networks that farmers use to collaborate in learning technology and agricultural production. Hassanein (1999) similarly found that farmers who worked within the sustainable agriculture movement in the mid-West were developing collective local knowledge. It was this knowledge building process that Rōling (2005) saw as forming an agricultural knowledge and information system (AKIS), one that he argued should be viewed as a transitory social structure because continual reconfiguration within and across clusters was essential to maintain creative synergy and innovation.

The Yakima Valley social networks incorporate a cross-border dimension within families and among agricultural practitioners that was evident from their interest in e-mail to maintain contact with family in Mexico and in cheap fares for travel to Mexico. Longitudinal studies of Mexican social networks have demonstrated an iterative back-and-forth of ideas, such as, for example, those that rural Mexican migrants brought back from the US crop innovations such as carrots and strawberries (Cornelius & Diez-Canedo Ruiz, 1976). They have similarly demonstrated the diverse US destination locations of migrant workers from rural areas of Mexico. Social network theory confirms that in instances in which the destination location is toward one area, the experiential exposure at each end is constrained or more narrowly defined; whereas when family members are spread with perhaps one in Los Angeles, another in Chicago, another in the mid-West, and another in the Yakima Valley, and they spend Christmas in Morelos or Jalisco, the information that they are exchanging has a very different dimension in that it is more focused on sharing alternative approaches and differences between those settings in contrast to a simple exchange of what is done in this locality in contrast to one other location. This is the principle behind Burt's (2005) notion of brokerage and closure. Thus if we spread our wings and broaden the interfaces to alternative or diverse groups, there is a greater possibility that we will see more than one way, perhaps many more ways of perceiving a problem, not just how to address it. And the more that we extend ourselves into the real world, the more we find real-world solutions—even if it is serendipitously.

In this study I have identified the social network as a key information channel that is particularly evident across the Latino community. A premise of Lin's (2001) theory is that individuals invest time and effort in relationships with the expectation of a return and, based on rational self-interest, make that investment where they perceive the likelihood of highest return. In focusing on higher-level information, which might also be described as the best or highest-quality information with regard to the purpose at hand, a group is constrained to the level of the highest-placed individual. This constraint is more evident when all of the members of a group are at the same level. A local group with more homogeneity and fewer degrees of separation will also have less richness of experience upon which to draw. My findings do not emphasize higher-level connections, but rather information sharing within a process of knowledge construction. This would, as least in part, reflect the reality that the same barriers that limit access to community public-access sites also limit participation in activities that foster access to higher-level individuals. This in turn reinforces the value of community gathering sites that foster serendipitous connections for Spanish-speaking newcomers.

Gaining Self-Confidence

With regard to adult Spanish speakers in the Yakima Valley, the informants identified increased self-confidence as a core benefit of the computer classes and coaching offered through community public-access sites. This self-confidence was identified across a number of areas, one of which is the empowerment that arises from gaining confidence in one's capability to learn what is required to participate in the cyber world should one choose to do so. My finding was affirmed in the core benefits that Yakima Valley CTC users identified in Fisher, Marcoux, et al.'s (2004) survey: Users at both sites "spoke of improved confidence and communication skills" (Community Technology Centres section, ¶ 2). These are comparable to the benefits of community-based informal learning that McGiveny (1999) identified in Britain: "increased self-confidence and self esteem; development of knowledge and understanding; improved personal and social skills; new practical skills; and greater personal autonomy" (p. vi). Such benefits fall within the benefits identified in Lin's (2001) social capital model.

Initiative: Development Policy and Entrepreneurial

The previous section looked at information and informal learning from an individual perspective; this section will look at the study findings from a development perspective. I relate my findings first to outcomes of national and international development policy initiatives using the World Bank War on Poverty as an example and then to entrepreneurial initiative as a contrast that reflects grassroots initiative.

My findings identify the benefits of specifically the use of public-access community sites in the Yakima Valley, some of which Fisher, Marcoux, et al. (2004) validated in a subsequent survey conducted at two of these community-access sites. My findings, which reveal enhanced personal agency in terms of skills, informed decision making, and self-confidence, are consonant with those of international development studies: Among the poor, the benefits of access to telecenters have contributed mainly to the advancement of individuals (Granqvist, 2005) and primarily to those who are already established, such as, for example, the coffee farmers in Costa Rica (Amighetti & Reader, 2003). Not only is personal return central to Lin's (2001) social capital model, but individual benefit also serves as the rationale underlying Carnegie Foundation funding to establish community-based public libraries throughout the world. Carnegie offered others the opportunity to actualize personal potential through self-education, precisely what he, as an immigrant, had gained from access to books and newspapers within the libraries. Carnegie's recognition that personal advancement is dependent upon the exercise of agency and requires personal choice followed by effort is consonant with Scheffler's (1985) interpretation of potential as "reflecting both the subject and his social environment, and, moreover, as open to considerable change" (p. 63). The notion of agency is inherent in Scheffler's framing of potential as the

> capacity for choice by active beings who symbolically represent both their environments and their options, imagining futures and recollecting pasts, forging durable selves and communities structured by ideals and rules, and creating, above the biological substrate of their lives, the realm of human history. (p. 7)

This notion of agency is consonant with Lin's model and embodies Schein's (2004) notion of organizational culture. It also captures the free agency inherent in Sen's (2000) recasting of development theory. In this context, not only did free agency emerge as a major engine of economic development, but it also contributed to the development of other kinds of free agency. Thus, through their use of various community-based sites, some Spanish speakers in the Yakima Valley appear to have enhanced their capacity for choice and increased the possibility of personal benefit.

Access to community public sites does not, however, address fundamental problems such as illiteracy; neither does it mitigate the barriers or contingencies of daily life. As others have observed, ICTs do not ‘leapfrog’ over other development problems (see Wade, 2002), neither do adult education programs (Selwyn et al., 2006). In fact, individual and local initiative determines, to a large degree, whether or not the benefits from the introduction of ICTs in rural areas will be realized (Granqvist, 2005). Similarly, the World Bank war on poverty undertaken to address the problems of rural poverty and retrain agricultural workers was not a solution. It is thus appropriate at this point to consider the World Bank’s approach.

Poverty: Macro Programs and Household Problem

The World Bank approach to poverty alleviation must be viewed in its historical context. Significantly, it built on the experience of a triad of successful development programs. The first, Roosevelt's New Deal, attacked the Depression problem with a soundly executed development program that involved building infrastructure such as dams, power plants, irrigation projects, and highways. The second, the massive US wartime industrialization experience, absorbed and quickly trained the nondrafted labor pool—farm workers, non-Whites, and females. This workforce both maintained the home-front infrastructure and expanded it by means of undertakings such as the building of a modern US naval fleet from scratch. In combination with a government-supported campaign to industrialize the nation, these big programs represented the most profound economic restructuring in American history. The third development program, the Marshall Plan, involved the reconstruction of the previously industrialized economies of Germany and Japan. This US-centered program reflected the ‘can-do’ problem-solving mindset. Each of these three cases represented an exceptional situation. Consequently, each case provided a reasonable justification for centralized decision making, which the public accepted. In addition, each case consisted of a clearly defined situational problem, clarity of expected inputs and outputs, and a focus sustainable over the duration of the event—the Depression, the War, the reconstruction. World Bank projects did not fit this framework; they did not share these key characteristics.

In my study findings the can-do mindset was identified by a mature bicultural informant as a cultural difference.

> *I was raised to believe that for every problem there is an answer. And you go out and find that answer and you apply it to that problem. Ping that solves that problem and you go on to the next one. Many people are raised with a sort of more amorphous attitude. There are problems in life for which there are no answers. They must be endured. Or, if the answer comes, I'm not a great enough person to do it. ...As far as I know Americans are the only people in the world who believe this. This is not a bad thing, I mean look at all the problems we have solved. But the rest of the world stands around and goes, Right, you're going to have a war on poverty. Sure you are, where do you put the prisoners?*

Past success and the experiences associated with these three programs, however, caused The Bank to apply its perceptions and skills through large-scale interventions as a solution to what it identified as underdevelopment or a lack of productivity. The focus was on increasing agricultural credit and educational opportunities for the rural poor. Major programs, however, work as a tool when they are applied to the replacement of nearly identical situations or at least largely comparable redeployment. In fact, the Marshall Plan did not initiate development; rather its success represented the rebuilding of an industrialized society. The economic collapse in Germany and Japan was a short-term anomaly. Agent networks with the experience, the skill sets, and the interrelationships to make things work already existed. There were local bankers and teachers, and in Germany an established apprentice system. Current pervasive unemployment and underemployment present very different challenges. Additionally, one must note, macro programs have a tendency to simply grow and expand and ultimately overwhelm the resources available to support them.

The comparable international educational response consisted of campaigns targeted to increasing literacy levels worldwide. Most prominent among these were the UNESCO programs initiated in the 1950s and 1960s around Fundamental Education and in the 1970s, Education for All. These successful initiatives have stood the test of time (Jones, 1988, 1990), contributed to public perceptions of literacy as a public good, and reinforced the perceived effectiveness of large-scale program interventions. These programs, however, did fit the framework of the triad of programs described above: a clearly defined problem, clear inputs and outputs, and a focus of finite duration. In the US the concurrent education example was the GI Education program, which also fit the framework. In that instance the participants were returning veterans. This unique cohort of future leaders—boys and workers who came back as battle-tested, seasoned men with proven survival and leadership skills—reentered civilian society via a massive program expansion within the postsecondary education system. This was an extension of the same school system that, at the turn of the century, trained agricultural workers en masse for an industrial economy. Postsecondary program graduates filled corporate leadership positions and extended the massive expansion of productive capacity initiated by the war effort. Capacity shifted to domestic infrastructure expansion included the Interstate highway system, domestic airports, and suburbanization. Corporatization brought with it a growing management sector that encompassed marketing, finance, legal skill sets, and departments and was exemplified in the new social identity of the organization man. The confluence of all of these factors contributed to a view of progress that progressively entrenched US interests throughout the world and is consistent with earlier colonial impacts whereby the local landscape is rearranged to the advantage of outside interests (Rihani, 2002). This worked against the professed goals of the World Bank War on Poverty. At the same time, this was evident in the plan to mount a war to eradicate, or at least overwhelm, the problem of poverty, particularly rural poverty. Unfortunately, this approach adopted a perception of development projects as a tool and tried to apply the tool as a solution. Similarly, the national initiatives to provide community public-access sites access to address rural poverty and retrain agricultural workers are not a solution, but rather one small intervention from which some Latinos have derived benefit.

A study informant noted the entrepreneurial orientation of many Yakima Valley newcomers from Mexico, an observation reinforced by the new urban businesses in the area, including restaurants and ethnic grocery stores. It was also reinforced by the emphasis on business applications in the technology sessions for Latino farm owner-operators offered through the RDCR (see Appendix C for background and Valley exemplars). Latinos, along with women, represent one of the few growing segments among US small-farm owner-operators. In 2005, of the 3 million US farmers, about 50,600 were Latino. Restaurants and farming are both high-risk, low-return businesses on the ethnic entrepreneurial path that Granovetter (1995) identified. In a study on Mexican self-employment in the US and Mexico, Fairlie and Woodruff (2006) observed that, although Mexico is one of the most entrepreneurial countries in the world, the rate of self-employment among Mexican immigrants in the US is unexpectedly low. They found that the "difference between the US and home country self-employment rates for Mexican immigrants appears to be an extreme outlier when examining the relationship across immigrant groups in the United States" (p. 1). This entrepreneurial dimension counterbalances urban and institutional perspectives and diversifies/elaborates the context in which informant perceptions, RDCR observations, and the self-reliant orientation identified in the study findings are applicable.

This case study of Spanish-speaking newcomers to the Yakima Valley suggests that Latino self-employment may be undercounted. Some Latino farm workers in the Valley establish ongoing employer-employee relationships (Howenstine, 1989), a rural variation of the identified entrepreneurial orientation that exists among day laborers in Los Angeles (Valenzuela, 2001), and one unlikely to be accounted for in self-employment surveys. Similarly, Latinos who work as farm workers while incrementally building an asset base over time as grower-sellers or producer-sellers are unlikely to be accounted for in self-employment surveys. These sellers and resellers are building their business skills and knowledge (Velázquez, 1993), sometimes through participation in farmers' markets (Hinrichs, Gillespie, & Feenstra, 2004), an agricultural counterpart of office-based social learning.

Information Commons: A Synthetic Proposition

The previous section looked at rural economic development from a policy and then an entrepreneurial perspective. This section outlines the notion of an information commons and situates it in relation to (a) Lin's (2001) social capital (b) Castells' (2007) notion of media power and (c) Schein's (2004) notion of organizational culture.

Introduction

Information sharing and shared learning were central thematic findings in this study. These processes of communicating and becoming informed were evident in observations of the public venues of real-world activities across the Yakima Valley. My analysis identified Spanish-speaking adults who maintained existing social networks and drew on a variety of information flows and resources as they sought to make informed choices and become established—whether as visitors or residents (that is, in the short or long-term). The analysis revealed acculturation as a multilayered process that occurs at multiple interfaces, one compounded by the fact that newcomers are situated on the periphery of established social networks. The interest in using and learning to use computers as revealed in the analysis demonstrates a growing use of a new technology. My analysis suggests some of the contributory factors: children eager to share what they are learning at school, parents exposed to computers at the office, a growing base of e-mail users across generations and among Spanish-speakers, and the associated social learning and diffusion whereby computers are being incorporated into the Latino array of technology options. Among the Spanish-speaking newcomer population, interests and increasing use of the computer, as revealed in the study findings, are consonant with this trend as identified in surveys of the wider Latino community. Newcomers are unlikely to be counted in such surveys, but whether the interests and needs would extend to the home purchase of computers, especially in light of steadily enhanced cell phone alternatives, remains undetermined. Moreover, perhaps a slower and/or lower rate of adoption is in line with their reality, which involves setting priorities and needs against the costs of ownership and the limited need for the information that is thereby available.

My analysis revealed a purposeful exercise of agency and a focus on self-efficacy that is consonant with the centrality of agency in Lin's (2001) social capital model. Self-directed learning and the commitment to their children's education are consonant with socio-economic mobility as an extrinsic benefit. The findings suggest that these parents gain intrinsic benefit from assisting their children. A related life satisfaction benefit that my analysis identified was related to 'giving back'. In the context of Lin's model, my findings thus reflect an interest in investing in education as human capital and in the family, which can be construed as relational or social capital. My analysis revealed the centrality of word-of-mouth information flows within this culture of information sharing and a seeking of trusted advisors that are consonant with the centrality in Lin's model of access to the embedded information resources of the social network. He identified four reasons for the importance of the social network ties: They (a) facilitate the flow of information, (b) exert influence on one's behalf, (c) confirm social credentials, and (d) reinforce identity and recognition. I would posit, however, that facilitation of information flows can be distinguished form the other three components of Lin's social capital. This is, at least in part, because information can no longer be construed as a scarce resource. Lin questioned the impact of cyber-networks on the traditional social network. My analysis suggests that the social network has not been replaced or made redundant as an information resource. Indeed, it remains a highly valued information source. There is, however, a reduced dependency on the social network with regard to providing access to a rich reservoir of information, and there is an alternative means whereby information and advice that the social network provides can be cross validated from multiple perspectives.

An Information Commons

Lin (2001) foresaw cyber-networks as the embodiment of freely available information. The volume of stored digital information of the last decade exceeds all of the printed information ever produced. Although there is significant redundancy within this stored information, the sheer volume and the availability of ever increasing quantities of information that can be accessed through the Internet have contributed to the cyber-world that Lin envisaged. Indeed, through the Internet vast amounts of information are accessible as part of a digital arena—in what I have identified as the information commons (Figure 4).

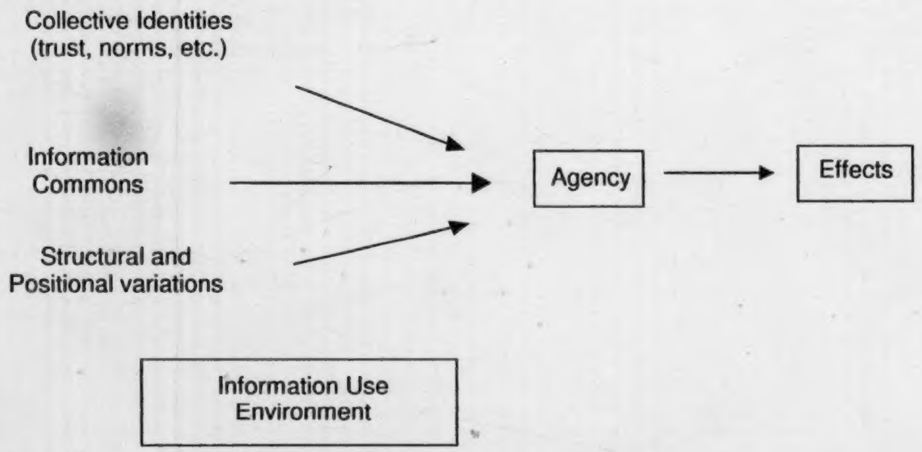

Figure 4. Information commons.

This vast and expanding reservoir of information has further reinforced the perceived importance of direct, real-time, and individualized access to the Internet. The role of ICTs in the core life processes of informing, communicating and learning further contributes to the perceived potency of these technologies of access. Moreover, the enhanced interactivity of the technologies allows for the sharing and exchange of documents, audio and video in contrast to the passive receipt of broadcast media. Cyber-networks have not, however, replaced traditional media; neither have they replaced social networks. I situate cyber-networks as part of the information commons. Along with the traditional media, they are one more dimension of what has become an ever more contested public arena. All ICTs contribute information, ideas and stories in the public arena. The Internet, however, has allowed for the creation of an information commons that is instantly global; furthermore it has situated information and its exchange more prominently within the domain of advertising with the public as consumer. And, as the model indicates, the information commons reaches across the information boundaries of what once would have been the internal or private information and communication of organizations and groups. Communication is through the power of image and story. The Internet epitomizes a marketplace of ideas and has taken the marketing efforts to new levels of intensity, at least in part, because this medium has invaded what were formerly private social spaces in ways that broadcast media never could.

My findings reinforce the fundamental importance of communication and information that is shared. Information and communication are central to the process of acculturation through adaptive learning and shared sense making. The acculturation process is not a simple trajectory of social mobility but rather is highly contested and conflicted. And I would argue that the cyber world, rather than an alternative to the social network, has come to embody the public arena of contestation, most visibly in the media. This is consonant with Castells' (2007) framing of the role of information and communication. As he observed:

> Throughout history communication and information have been fundamental sources of power and counter-power, of domination and social change. This is because the fundamental battle being fought in society is the battle over the minds of the people. The way that people think determines the fate of norms and values on which societies are constructed. (p. 238)

Lin (2001) and Castells viewed power and counter-power as central. In contrast to Castells, however, Lin took a more pragmatic or functionalist approach. Rather than domination and oppression, I would suggest that economic greed embodied in the consumer society is a key factor. Multinational corporations are seeking to dominate markets, not workers. They do want a readily available, flexible, and, arguably, disposable workforce; and profits are maximized when the provision of an overtrained workforce is paid for from the public purse. However, Castells' framed the object of the battle as minds of the people, a notion comparable to Lin's social capital and Schein's (2004) organizational culture. The focus for the newcomers as revealed in my data was on maintaining their collective identify while acculturating and thus on the pragmatic dimension of Lin's social mobility on behalf of their children. This reinforces why I have situated the information commons as an arena between the collective identities of kinship and those of the establishment. This public arena is where Castells saw that the "battle of the human mind is largely played out in the process of communication" (p. 239). He identified mass self-communication as a new communication form based on horizontal networks and related this to a culture of individualism. This is a conflict with the Latino culture of communalism. The media, which Castells identified as "the space where power is decided" (p. 240), is one component of the information commons as I have framed it.

A study informant noted that Latino farm workers recognize that the world is increasingly controlled by computers. Lin (2001) saw information as a key means of control. Schein (2004) identified control of information as a management tool to maintain power and status. An example of computerized control directly applicable to Latinos in the Yakima Valley was outlined in a Seattle newspaper (Mapes, 2000). Readers learned that nonlegal farm workers avoid employers who use the Social Security Administration's electronic verification system which instantly identifies social security number and name mismatches. They chose farmers who mail in their employee records after the harvest season. Allowing the late mailing of the records is an accommodation that can be changed in an instant: "It is a wink-and-nod system that frustrates growers, workers and the government" (¶. 5). This knowledge, once published, became part of the information commons. Awareness of this risk offers an alternative explanation of why some Latinos might choose not to use computer-based identification systems and might remain cautious in their engagement with public institutions, including community technology access sites. It also reminds us of the cautions of Franklin (1990) and Turkle (1997). As Mapes observed, the worker "is both beneficiary and victim of an immigration policy that is lax enough to let him work here but tough enough to make it hard to go home" (¶6). One worker has "worked in the Yakima Valley since his marriage 17 years ago, staying linked to Mexico by his two luxuries in life: long-distance phone calls and home videos, which he watches at his landlord's house in Toppenish" (¶6). The two luxuries identified, long-distance phone calls and home videos, are consonant with the findings of this study.

Consideration of the information processes through lenses introduced in Chapter 2 suggests, however, that what remains core are individual and small-group processes of informal learning, sense making, and the building of relational connections and that traditional social networks remain integral to these processes. My findings do not support suggestions that Yakima Latinos are information poor rather they are seeking to navigate the information borderlands between groupings of identity and structure. In the former relations of trust dominate; in the latter relations of multiple hierarchies dominate. In both certain information and knowledge is viewed as core to the vitality of the individual, the household and the larger unit—information that is not intended to become part of the information commons, or public record.

Within the notion of information borderlands I recognize the multiple dimensions of identity, relationships and socio-economic status that in turn differentiate various and diverse hierarchical and horizontal communities of trust. Such cultural, ethnic, economic, political, and generational dimensions are reflected within but are not unique to the Latino population of the Yakima Valley. At this time of social fragmentation the question arises as to the impact of a proliferation of peer based or horizontal information borderlands in a context of global media concentration. Perhaps the impact of technology on long pervasive trend lines might inject the appropriate adaptive or creative destruction necessary for vitality in the long term. Alternatively, the digital technologies might prove to also be destructive to the cultural fabric of society and to its stability built on patterning and enduring relationships. It is part of the larger question: How do societal subgroups continuously adapt to an increasing rate of change and harness the technologies and technology driven changes to meet their own ends?

Agency and Our Multiple Selves

In the previous section I looked at the conflicted arena of the information commons. In this section I will discuss development from an individual perspective. I will also relate acculturation to the notions of choice and human potential on the part of individuals as they balance their priorities and roles as members of multiple collectives.

My analysis identified the family-centered orientation of the Latino community as a central value that distinguishes them from the wider community, an orientation evident in their use of public-access community sites. In the findings, this orientation is reflected in the themes of shared familial learning and kinship-based social networks. Families arriving from Mexico, particularly rural Mexico, find themselves being acculturated within a society in which families are becoming more loosely connected (see Boase & Wellman, 2006; Wellman & Kennedy, 2007), and individuals, along with their social identities and relationships, are increasingly institutionally embedded. For those coming from countries where a collective identity is the cultural norm, the US embodies a society of individualism and consumption. And for families arriving from Mexico, particularly those coming from rural areas, existing home tensions arising from shifting generational and gendered roles are amplified. Moreover, G. Valdes (1996) observed that "advocating the acceptance by this population of the mainstream culture of achievement with its focus on individual upward mobility will have profound human costs" (p. 205). I interpret those costs as arising from pressures on the Latino cultural identity in which the interests of the collective take priority and familial roles and responsibilities are framed accordingly, particularly in relation to life-stage responsibilities.

Even in relation to information, my findings reveal Latino families as centrally concerned with the person: Is he or she trustworthy, reliable, knowledgeable? These are important attributes when you have a connected or bonded relationship and when life is viewed in terms of roles and responsibilities. In the traditional Latino family the parents, and elder siblings in turn, are role models. As Neufeld and Maté (2004) observed community and extended family have provided the "sense of rootedness, belonging and connection that served as an invisible matrix in which children matured and gained their sense of the world" (p. 305). There appears to be a global trend whereby the family as a social space for the development of intergenerational experiences seems to have been lost (Peláez, 2002). As Kaplan, Henken and Kusano (2002) noted, the age segregation initiated in school and extended to social activities and living arrangements is furthered by urbanization. Kaplan et al. cautioned that, despite the impact of such segregation, it is only beginning to be explored in terms of long-term consequences.

As a mechanism of social change, families provide a site of intersection of social and institutional hierarchies and, within the extended family, horizontal peer groups of siblings and cousins. In some Latino families these linkages continue to be extensive and substantive. The family has been at the center of processes of individual and societal reproduction for centuries. As an ideal unit of scalability for transmission of cultural norms and values, it is a mechanism to maintain social order. The generational reconfiguration of extended family groupings contributes to vitality and change. Transmission of cultural traditions and norms becomes increasingly diffuse without intergenerational continuity and strong relational ties, processes that are traditionally nurtured by proximity. Ideally, each family head manages adaptive cultural change so that the collective can survive in a changing environment, the leadership function that Schein (2004) framed. Schein saw culture change with its inevitable unlearning and relearning, as "by definition, transformative" (p. 335).

My analysis identified sharing as a strong theme. Schein (2004) saw the concept of culture as adding to the critical concept of sharing through "structural stability, depth, breadth, and patterning or integration" (p. 14). Stability is maintained through group identity which is deeply embedded and has a broadly pervasive influence. Patterning or integration addresses a sense-making need for reduced stress toward stability or improved functionality. Schein saw change in human systems as centered on sense making toward stability and meaning: "The function of cognitive structures such as concepts, beliefs, attitudes, values, and assumptions is to organize the mass of environmental stimuli, to make sense of them, and to thereby provide a sense of predictability and meaning to the individual" (p. 320). The process of shared sense making as social learning also builds relational capital. It is Schein's notion of culture and the prioritization of collective identity that provides a more robust explanation for the study findings than does Lin's (2001) social capital model with its emphasis on socio-economic mobility. Moreover, Schein's framing of information cultures draws attention to the interplay arising from multiple cultural or group identities in relation to information flows and change.

A recurring theme in the literature related to this study has been the multiple selves embodied in individual agency. This is linked with capacity to choose (Scheffler, 1985) and free agency choice (Sen, 2000). In contrast to Lin's (2001) model, Schein's (2004) framing of organizational culture and information cultures also makes explicit the interplay arising from multiple cultural or group identities in relation to information flows and change. Although Latinos share elements of a collective identity, the collective encompasses individuals with a diversity of attributes, group memberships, structural positions and value positions. Those individuals have divergent views on many issues, and many US Latinos do not speak Spanish. The Yakima Valley is similarly a composite of diverse collective identities and underlying social networks comparable to the subcultures of an organization, as is each household.

In considering how to convey what I interpreted as the interplay of these two dimensions at the community public-access sites, particularly for women, I found Ibarra's (2005) framing of the process of career transitions useful. Ibarra recognized that "we are not one but many selves, and they are defined as powerfully by our hopes and fears for the future and by our present circumstances as by our past history" (p. 202). She found that professional women who undertake a mid-career transition, women whom I equate with Latino matriarchs engaged in acculturation, should go through a process of recognizing and playing with "possible selves—the images and fantasies we all have about who we hope to become, think we should become, or even fear becoming" (p. 202). She contended that doing so increases the likelihood of a successful transition. The process required uncovering and facing one's preconceived notions of job possibilities, personal value attached to money and status, one's inner identity in contrast to that already molded. Fletcher (2004) found that immigrant women go through a similar process to define new roles, statuses, and possibilities; a process she termed *cultural hybridity* which she suggested is experienced as an individual. It is not a single location, nor a group experience. Fletcher identified a lack of interaction with women in the wider community as a limitation for the women in her study as they sought to develop their new identity. These studies reinforce the importance of interaction with individuals already established in the community of which one wishes to become a part. This in turn reinforces the positive potential of community public-access sites to facilitate acculturation in a positive way as community gathering sites with a diverse clientele that includes both newcomers and local residents.

What is emerging in these areas is a greater recognition that in aggregations, such as those of Lin's (2001) social capital model, there is an attribution of patterning or homogeneity on a scale that does not reflect the complex and diverse reality. Selwyn et al. (2006) introduced the notion of ambivalence with regard to the use of computers and formal adult learning. They distinguished the meaning of the term in psychology and sociology. In the former it can represent an internal conflict and in the latter, a conflict with structural or collective norms. The notion of ambivalence has been identified as central to differences in views on the importance of intergenerational learning and family ties (Connidis & McMullin, 2002). At the same time mainstream or majority views are as likely to reflect habitual behaviors and choices as they are to reflect conscious choice.

My study relates to processes and groups identified as difficult and costly to research: informal learning (Selwyn et al., 2006), immigrant populations (Fisher, Marcoux, et al., 2004), informal trust networks (Stephenson, 1998) and family or nonpublic businesses (Collins, 2001). However, transformation for individuals in all of these areas rests with individual choices and decisions and with adaptive or reconstructive learning initiated from within. This process can be perhaps best seen in the Wildflowers Institute (2007) process of developing community leadership. At the core of the process is the need for individuals to know themselves and the values that define them. This in turn provides a foundation for emergent leadership and for the negotiation of the common good to be fruitful. As outlined earlier, this process builds on Schein's (2004) conceptual framework, although the principle goes back to the universal principle of knowing oneself. Even though the process of acculturation is more generally thought of as relating to newcomers, from an individual perspective it is the same process that underlies all major life changes and coming to know oneself anew as part of the adaptive change process. The key that emerges from the analysis of the study findings is that of individual self-definition and the self-recognition of the values upon which one chooses to retain, adapt or discard some traditions while adopting selected innovations.

Central to the work of the Wildflowers Institute (2007) is understanding that it is a strong sense of self from which leadership potential emerges. This is the same process in which the mid-career professionals (Ibarra, 2005) and the women in the acculturation center (Fletcher, 2004) were engaging. In relation to my analysis the key contribution of community public-access sites would be their contribution to the self-confidence of newcomers. This contributes to a strong foundation upon which to continue the adaptive learning and acculturation process that was triggered by a need to acculturate in a new country. A young Latino/a informant in this study observed that it is so much easier to learn English when you have a strong and confident sense of who you are. Another mature Latino/a observed that so many within the Latino community have the potential to take their rightful place within the wider community but lack the self-esteem to do so. My analysis suggests that although the process of building self-esteem and self-confidence may be nurtured by others it is an individual process. In the same way that each child within a family becomes a self-directed and self-organizing individual prepared to undertake a leadership role as head of household, the process replicates within communities and organizations. And this represents the inherent strength of building leadership from within. These individuals have the self-discipline, self-organizing capability and confidence central to the exercise of leadership.

CHAPTER 6:

CONCLUDING CHAPTER: DISCUSSION AND REFLECTION

This chapter presents the conclusions and relates them to the objectives and significance of the study as outlined in Chapter 1. These are followed first by reflections on the research methodology, experience, and journey and then by practice and policy recommendations and suggested directions for future research.

Introduction

In support of the thesis that greater Internet access could benefit Spanish speakers in agricultural communities, in previous chapters I examined a number of aspects of ICTs, information access, adult learning, and contemporary society that facilitate or 'structure' information flows for the purposes of knowledge building and envisaging. Chapter 2 introduced a number of perspectives on information and ICTs, including access and use in relation to human and social capital policy initiatives, organizational behavior, information behavior, learning, and competitive advantage. These perspectives included the rationale and assumptions that underlie current arguments in support of computer capability as an essential human skill, computer use as an essential social skill, and cyber-network participation as an essential civic skill. The arguments prominent in the early stages of home access to the Internet were accompanied by an optimistic view of the Internet as offering, if not an alternative power structure, at least one more equitable in terms of core-periphery information access. Such optimism was reflected in Lin's (2001) notion of cyber-networks, Castells' (2000) notion of the cyber world, and a societal recognition of information as a key resource. Chapter 5 related the study findings to the constructs and literature outlined in Chapter 2, and examined them further to consider claims that access to virtual networks might provide an alternative to, or even supplant, existing social networks. I introduced the notion of an *information commons* as a refinement of Lin's social capital model. The objectives were twofold: first, to examine more closely the relationship of computer-based information networks vis-à-vis those locally grounded; and second, to ascertain the perceived interests that prompt computer access and use among Spanish-speaking users at public-access sites.

The question of whether access to and use of cyber-network–embedded information would contribute to a decrease or an increase in social stratification along existing socio-economic lines is a consideration implicit in the study question. It was also a reason for undertaking the study in the area of the Pacific Northwest centered on the Yakima Valley. For Spanish speakers the area encompassed pockets of Internet disconnect broadly contiguous with well-established Spanish-language social networks, Spanish-language media presence, and free community-based access to the Internet. My analysis identified a dynamism embedded within the 'informal' sector—that which is 'under the radar,' such as informal communication, informal learning, and, perhaps equally, in the informal and entrepreneurial economies—areas where self-reliance and self-organization are in evidence. Although I recognize that personal, direct Internet access is not necessary, I contend that cohorts can expect to derive benefit from participating members who are actively drawing ideas and expertise from an information commons—one exponentially growing component of which is currently embedded within the cyber world of the Internet. The opportunity to avail oneself of the data, the ideas, and the dynamism of the Internet, either directly or indirectly, is increasingly important. It can offer a competitive edge in the information and knowledge marketplaces.

Research Objectives

This study was undertaken to gain a deeper understanding of the dynamic forces that underlie community vitality in a changing world through an examination of the perceived value of Internet access as a technology-embedded information resource within a process of acculturation. The study was framed in response to national initiatives to extend Internet access through various community-based public-access sites. An implicit premise of digital-divide rhetoric at the time was that unless corrective measures were taken, those without direct connection to the Internet would be increasingly marginalized—perhaps to the point of exclusion. In the digital world one is perceived as on or off, inside or outside, connected or disconnected. I hypothesized that access to the Internet might give rural Spanish speakers access to knowledge that might offer greater control over, or at least mitigation of, elements that influence their lives. An underlying premise is that this knowledge could mean greater benefit from adaptive response to dynamic changes. In examining the agency potential of information, I undertook the study in a locale with embedded diversity, a range of proximate postsecondary facilities, agricultural-based businesses that serve global markets, an efficient transportation corridor, and a cosmopolitan urban hub.

National digital-divide initiatives were derived from policies framed by national interests in the economic side of a common-good rationale. Theoretic underpinnings of the digital-divide position were linked to increasing levels of human and social capital. The theories grew out of the postwar context that linked national economic growth to the productivity gains of individuals and firms. Individuals and organizations were seen to benefit from massive infrastructure projects such as, for example, the Interstate system. The Interstate system facilitated the mobility of goods, which in turn allowed specialization in support of mass production. This gave rise to economies of scale, lower prices, and higher incomes. Equally important, because it provided individual mobility, it was seen to allow individuals to develop to their full potential. These forces were subsequently replicated globally.

As embodied in the Internet, the information highway was perceived to be a replication of the whole Interstate experience. A wide appreciation of the benefits that local Interstate access could provide to communities was a driver underlying discussions of universal Internet access. This idea was reinforced by perceptions of a transformation to a global information economy and then to a knowledge economy. These economies were subsequently linked to an information society, a learning society, and then a knowledge society. Underlying the digital-divide debates was an implicit assumption of the need for everyone to connect digitally; those not digitally connected are disconnected and do not exist as a service point. A further implicit assumption was that the world only became networked or interconnected with the arrival of the distributed network infrastructure of the Internet. This led to the study focus on the role of traditional social networks in contrast to virtual networks.

The research question identified in Chapter 1 was What are the perceived reasons for access and usage of public-access computers among Spanish-speaking adults in agricultural communities of the Yakima Valley? My conclusion, based on an analysis of the study findings, is that growing numbers of Spanish-speaking adults in agricultural communities in the Pacific Northwest are using computers to access the Internet. The primary use evidenced in public-access sites is to maintain existing social networks by using e-mail. The findings reflect a process of diffusion in play motivated in part by the growing use of e-mail among family and friends, including those in Mexico. Diffusion is fostered by the household's children, who are growing up as computer users, and adults who share their computer learning experience within their peer cohorts. The existing and diverse social networks draw on an array of informational sources and resources, some of which can be engaged or delivered via the Internet. The evident information sharing suggests that for some adults the social network might well meet their information needs and interests. Information needs are also met by using proxy access to the Internet through family members, peers, and known others with network access and experience. The social network as an information conduit can thus represent an instance of the "Think global and act local" mantra.

For those who actively seek novel ideas or enriched perspectives, access to the Internet would seem, however, to uniquely offer avenues to tap into a component of the global information commons that can counterbalance some of the limitations inherent in social networks. This includes interactive access to expertise not locally apparent or readily accessible and to various prefiltered streams of incredibly diverse and specialized information and resources. In terms of information central to daily living and household priorities, however, the determination that access to the Internet is of little interest might well represent a reasoned decision. With limited disposable family income, media and information channel choices are weighed against basics such as food, transportation, shelter, and very limited available time. This is the situation for many seasonal agriculture workers as it is for other households with limited cash resources. Non-English and rural choices are more limited and may be more costly. Moreover, there might well be more cost-effective alternatives than a home computer with Internet access.

In Chapter 1, I also identified several subquestions that arose from the primary research question; they guided the initial data analysis, and I used them to frame the conclusions derived from a consideration of the analytic themes. The questions were whether and how access to computers and Internet-based information

- relates to existing information flows within the social network of participants,
- might be perceived as offering the potential of personal benefit,
- might be perceived as a useful communication channel,

- might be perceived as a source of potentially beneficial information, and
- might be accessed through existing community 'socialization' sites.

In terms of information, the diverse social networks represent a core information conduit that is dynamic and efficient for Spanish speakers in the Yakima Valley. These networks serve as a cost-effective mechanism for day-to-day information needs and interactive sense making. The study identified Latinos, as information consumers, as positively inclined and actively drawing on a range of available sources, including media and computer-based resources.

Spanish speakers in the Yakima Valley are using computers and Internet access offered at public-access sites. Their participation in the free computer classes represents a purposive action to effect change. The actions center on learning to use the computer to send e-mail, to access job-related information, and to acquire a skill set to secure employment or job advancement. E-mail is accepted as a useful communication channel, and computer capability is perceived as having personal-benefit potential, most often characterized as competitive advantage or keeping up. The instruction provided through public-access sites contributes to increased self-confidence for individuals who are often initially hesitant about their computer capability. Furthermore, mastery of e-mail gives them a personal sense of having crossed the digital divide. Seniors have grandchildren or others send e-mail for them as a strategy to utilize the recognized benefits of the technology.

Spanish speakers appear, in true constructivist terms, to impose the same kinds of understandings on their cyber experience in starting from what is known—that which arises from past experience and is shared through peer and ethnic cohorts. This approach and the emphasis on the reinforcement of existing social network connections is consonant with the evolving social dimension of the Internet; namely, communication with an existing social network. Spanish speakers who use public-access sites have demonstrated an approach that is both cautious and adventurous. The caution, at least in part, reflects resource constraints—particularly time, transportation, and money. The reality of having less means that they exercise caution in meting out what they do have. Thus a lack of interest in the Internet can reflect a reasoned judgment that what is incrementally available through such access does not warrant additional associated costs and effort.

This study was a follow-up to several trips to the Yakima Valley region and an introduction to the social network structure of this Latino community. These networks represent a long-enduring tradition and the dynamism of the persistent waves of transitory workers. In an endeavor to impose a reasoned inquiry, I sought to disaggregate the various communications into real-world social networks and understand the potential and efficacy in relation to those of the developing virtual networks. The investigation was anchored in the real-world interests and concerns identified in the data that center on individual and collective motivations of self-improvement and effective adaptation to an alternative economic and social environment. Within that objective, I sought to identify credible lines of information, whether they were social, business, institutional, or ethnic, and to construct equivalencies within the cyber-networked world in terms of relationships and constructs. Within this simultaneous network duality, I began by attempting to gain a real-world, real-time perspective of individuals and households who move back and forth between networks—the relational social network, the institutional community network, and, to some extent, virtual networks. The study analysis brought out the parallel institutional significance of informal social networks as information conduits and peer cohorts as sites of sense making and innovation.

Policy Recommendations and Discussion

In the case of ICT and cyber-network access, my analysis suggests that such interventions should support family stability and asset development while being culturally sensitive to family-centered intergenerational learning. Interventions in keeping with this analysis and the informants' insights would support (a) home-based learning, (b) intergenerational and peer learning, and (c) free community-based instruction and volunteer tutoring at diverse sites. Initiatives would be small scale and niche focused, support expressed capability interests while raising awareness.

My recommendations are based on a parallel line of argument and are in concert with those of Selwyn et al. (2006), who contended that "there is a role for policymakers and educationalists to continue to nurture ICT-based adult learning" (p. 192) with support that fits with the everyday lives of individuals. Their recommendation proposed

> developing any action or intervention from a bottom-up perspective and centered around fitting with the individuals everyday life; not attempting to

> coerce people into using ICT but supporting those who do; drawing on people's propensity to use informal means of engaging with technology and education. (p. 204)

My analysis suggests that employing Spanish-speaking or Latino lead users at community public-access sites, given the strength of the Latino grapevine in the Yakima Valley, would be a cost effective method of nurturing consideration of the technologies and their usefulness. The rural dimension is a key distinction evident in many jurisdictions and requires further research. My recommendations recognize and build on my finding of increased self-confidence as a significant benefit of access to free classes and computers through community-access sites. This benefit was not specific to Spanish speakers; it was also evident among novice or inexperienced users of various socio-economic groups.

Many of the global push-pull influences on immigration and outsourcing are mirrored in the Pacific Northwest. Microsoft and Boeing contribute to Seattle's placement among the top 10 high-tech employment centers in the US. At Microsoft, in addition to downsizing in response to reduced market demand, development and service support have been outsourced to India and China. Boeing, a major employer of highly skilled design, engineering, and manufacturing workers, reduced its Seattle workforce from 120,000 to 60,000 employees between 1999 and 2003. The reduction was primarily a result of reduced market demand and the outsourcing of design to Russia and India. All but seven of the state's counties are rural, with a population density of fewer than 100 persons per square mile. Moreover, agricultural counties such as Yakima County have higher levels of unemployment and poverty. The Latino population, however, continues to be doubly disadvantaged in terms of higher levels of poverty and unemployment that are compounded by residency in rural counties with an agriculture-based economy. As Kirschner and Irion (2006) observed, it is difficult to meet the needs of immigrants, many of whom "are adults who are particularly difficult to enrol in educational programs because of work and family commitments" (p. 7). They identified a need to improve educational opportunities through programs for Latino working adults at the individual and community level.

Community Recommendations and Discussion

Another key theme in my findings was a lack of exposure or experience among Spanish-speaking adults, and expectations are bounded by experience. As Henry Ford is said to have observed, if he had asked people what they wanted, they would have asked for better or faster horses and carriages. It is this human limitation that reinforces the need to support wider exposure and experience. I make the following community recommendations in this context. There is also a renewed interest within the academic community in reconnecting research activity and findings so that they deliver local benefit within the communities where the research was undertaken. The following recommendations contribute to that objective.

Those who provide or advocate on behalf of front-line service delivery—in this study this was access to computer-based ICTs and the Internet—are most often called upon to provide input into the improvement of existing programs, services, or implementation strategies for new services or programs. The recommendations derived from the data analysis, however, are not operationally driven; rather, they relate to the study question and to the hypothesis that access to ICT information resources might offer benefits in terms of greater control over or at least mitigation of outside influences. In the context of the priorities of Spanish speakers in the Yakima Valley and what learning to use the computer might offer, this section frames my recommendations in three areas: public-access sites, US-recognized credentials, and spatial-information awareness.

Staff who are interacting with an increasingly diverse public might overlook intercultural communication in discussions of intercultural sensitivity. This includes such topics as styles of communication, body language, interpersonal space (see, e.g., Ting-Toomey, 1994, 1999). An example related directly to the study data is the interpretation that lack of eye contact signifies hesitance, whereas in the Latino culture lack of eye contact might instead be a sign of respect. Another aspect easily overlooked is the significant amount of 'unlearning' that is imposed on adults, particularly newcomers. This finding emerged from the findings with regard to a small aspect of this major topic. Although the informants were bilingual and aware that the Spanish word for bookstore is *librería*, the informants often attributed the expectation of Spanish-speaking newcomers of a cost for library services to their lack of awareness of what libraries are and how they work. Reflecting on my experience across Mexico that includes rural villages, I could not recall having encountered any lack of understanding when I described myself as a *bibliotecaria*. In Mexico my experience has been that municipal libraries are free and that librarians are viewed as comparable to teachers or *maestro*, which suggests a recognized connection between the roles and the institutions. This finding suggests that, in terms of proactive service, externally visible signage could play a useful role in conveying appropriate mental images; in the case of Spanish, that of a library rather than a bookstore. Such signage is likely to contribute to improved expectations of what is offered and the basis on which it is offered. This suggestion could raise questions around official-language debates, but it is in keeping with the long-standing tradition of libraries as a key and valuable resource for newcomers who seek to acculturate and become self-sufficient in an alien setting. The benefits could be significant, particularly among those with limited income and for whom the expectation that they will have to pay could well be a major additional barrier to entry. Sarling and Van Tassel (1999) also recommended bilingual signage for libraries—both inside and outside. This recommendation reinforces the question of local context. There are also significant Korean and Russian newcomers in areas of the Yakima Valley; it is uncertain whether the same confusions might arise from the Korean or Russian terms for libraries.

Las Plazas Comunitarias, GED, and Jobs

My findings reveal that individuals and families among Spanish speakers in the Pacific Northwest are prepared to learn how to use computers in public-access sites and are motivated to learn English and enhance their skill sets and knowledge base. These findings suggest the potential for extending media use to the computer to effect self-directed learning in areas of interest. Thus, subsequent to the data collection and preliminary analysis, I monitored the Internet to identify initiatives that appeared to have the potential to address these identified interests. A resulting recommendation is to investigate further the En Su Biblioteca program. This Internet-based program for adults was developed in Mexico, is supported by the Consulate General of Mexico, and has been implemented at the Dallas Public Library. In following up, I was advised that the program has recently been initiated in Yakima City under its alternate name, Las Plazas Comunitarias.

In addition to computer training, ESL, and Spanish literacy courses, the program offers adult basic-education courses in Spanish, courses toward GED attainment, and the opportunity to take distance higher-education courses. Through the program adults from Mexico learn in their first language while obtaining US-recognized credentials (see http://washingtonst.conevyt.org.mx). The initial phase in Yakima City will primarily involve school-based sites. In this study, using the computer and learning English were capabilities that Spanish speakers identified as priorities. In addition to addressing these objectives, Las Plazas Comunitarias offers scaffolding potential toward the attaining educational credentials. Because the program is not in lockstep with the school-year calendar, such credentials can be achieved while continuing to fulfill work and home responsibilities. Moreover, it can be completed at home, in a public-access setting, and individually or as a group. Moreover, participation can continue while families relocate as part of the migrant workforce. There is no incremental cost to families who have a child participating in the pilot program, in which some students whose schooling spans Texas and Washington have been provided with a laptop computer, Internet access, and tutor support. The migrant student-tutor support program provides a model, and sites are already operational in the state. An alternative tutor-support model that has been used in the Yakima area is the Web Wizard program supported by WSU extension.

In making this recommendation, I recognize the substantive difference between learning to use the computer and using the computer to learn. The distance-learning options introduced through a program such as Las Plazas Comunitarias also present wider alternatives to the community. Latino family members are expected "to contribute to the well-being of the family, and to stay physically engaged by either living at home or visiting often, participating in family events and staying in touch" (Tornatzky, Lee, Mejia, & Tarant, 2003, pp. 2-3). For Latino families in the Valley, finding work close to home can be more important than a higher salary—even for university graduates.

The second major area of informational interest identified in my findings is occupational or job information. Over the course of the study the Washington State WorkSource database has evolved and represents an efficient one-stop site for access to job information across the state. Although the site is in English, the vocabulary and the menu interface suggest that navigation would be possible even with limited English (see https://fortress.wa.gov/esd/worksource/). For newcomers with an interest in improving their English and gaining some appreciation of the local job market, it is a cyber-network resource that seems to offer potential benefit. The site offers residents a workspace where they can post or store resumes with restricted access or submit applications online. The system often indicates how many applicants have been interviewed for posted positions. The site presents local wage rates, educational requirements, and skills sets in demand, information that can raise awareness and give rise to questions that might be followed up within the social network. It also includes tips such as how to write a resume and reasons for not posting references. Pages link to the classified-ad sections of many of the state newspapers, including several in the Yakima Valley and the Columbia Basin. In the Yakima Valley some CTCs work directly with WorkSource. This site reinforces one of the compounding effects of not being able to use the computer at all.

In the Yakima Valley the identified interest in learning the computer to improve employment opportunities has a strong technical or vocational dimension. Perry Technical Institute in the Yakima Valley has been operating since 1940 (see http://www.perrytech.net/). The institute offers Associate of Applied Science (AAS) degrees in technologies that include telecommunication, electrical, graphic, instrumentation and industrial electronics, machine technology and refrigeration, and air conditioning and heating. The increasing IT component of the educational priorities in Yakima relates to the increase in electronic control of all of the processes that were formerly manual, such as in welding shops, where manufacturing now involves computer numerical control (CNC) cutting of steel and automated welders. These are areas of direct pertinence to the job market in the Valley, such as, for example, in irrigation, refrigeration, and manufacturing. Such a career path has proven successful for many Latinos in the Valley. At Magic Metals, a sheet-metal and machining shop, Latinos hold lower level and highly skilled positions (Harrell, 2000). Tornatzky, Macias, Jenkins, and Solis (2006) found that growing numbers of Latinos are earning associate degrees in IT, and, indeed, they are overrepresented among those who are receiving basic and advanced IT certificates, generally obtained through programs of less than two years at private, for-profit institutions. This is a local door that English-language and computer capabilities, along with a GED credential, would open. Moreover, it is a path that taps into an established Latino social network with the potential to provide job references, mentoring, and information (C. Garcia, 2005). Of equal importance, the Perry Technical Institute IT grouping resonates with the knowledge component of the

Latino social network in that it accesses preexisting aptitudes and mechanical interests and upgrades them.

Family Centered Learning

My analysis identified as a theme family-centered and intergenerational learning. In agriculture the 4-H movement was founded to build on this intergenerational learning-transfer dynamic by reinforcing the introduction of new agricultural technologies and approaches through youth. These factors suggest that Latino families would benefit by encouraging an applied orientation to school-based ICT instruction. The study data identify three areas of potential benefit: translation, small business application software, and GIS spatial-data software.

My analysis reveals that translation is a need at multiple levels. Translation possibilities available through the Internet increased in sophistication and ease of use over the course of this study. Many Latino youth function primarily in English, especially outside the home. Translation software is not typically a school focus. Students are, however, taught to use the Internet. Developing bilingual Internet search expertise starting with Google's Spanish interface could be of benefit within the extended family. It is an area that also has the potential to reinforce reciprocal intergenerational transfer of knowledge and perspectives. The development of Internet translation capability would readily extend to the introduction and use of the many ESL sites that offer support for practicing spoken English, building vocabulary, and improving writing skills. This has the potential to support Latinos' parental role in relation to their children's learning and to support adult learning. As my research findings indicate, home responsibilities make it particularly difficult for women who are trying to practice their English. I have framed the use of translation software and the Internet to build English-language skills from the perspective of households in which adults seek improved English-language capability. This approach can contribute directly to the family-based learning evidenced in the study and recognized as culturally important. This perspective, however, is but a subset of the wider question of limited language capability in the global context.

Translation-software use allows every human endeavor to be unimpaired by linguistic constraints through the facilitation of two-way communication globally. An early example of comparable use of artificial intelligence applied through software is chess. Chess rules are a universal language, and the game can be played without speaking as players execute their strategic moves. Software was developed to embed the rules, exceptions, and strategic approaches to the game. IBM's Big Blue became a competitor at the chess table. Over time Big Blue became sophisticated enough to win the game. People want to be able to do with language what has been done in the chess world and is embedded in the chess software. This capability to translate for individuals is a critical enabler that allows transethnic communication and engagement. One of the motivating aspects of Internet participation for individuals has been the ability to connect with others around the world. A unilingual individual, however, is highly constrained, whereas Internet-based translation software opens up possibilities to interact with others globally, such as in the case of a Seattle engineer who is communicating with a Chinese engineer on a design question. For Latino families in the US whose children are so rapidly losing their Spanish-language capability and thus are no longer able to speak with their grandparents—whether in person or on the telephone—such software can facilitate ongoing interaction between the generations. This produces a sense of identity, the fulfillment of which in the absence of family involvement in the adolescent years has been implicated in the rise of the gang phenomenon.

My findings identify an interest in learning job-related software and a growing number of Latino small-business owners and farm owner-operators. Office-productivity software for word processing, spreadsheets, and Web-page development requires skills taught in school. In some cases the parent-child learning observed at public-access sites is related to this software. There is a potential for family benefit for small businesses and farm owner-operators in the application of these skills to reinforce the applied benefit of what the children are learning; it also provides a focus for family-centered learning. The content and objectives of the RCDR computer training sessions noted in Chapter 4 are similar to those of Project FORGE. The mission of that partnership, led by USDA and University of Texas–Pan American was to assist small-farm ownership and operation and to serve Latino operators in particular. Project FORGE provided an outline of the base ICT competencies considered essential for the business side of small-farm operations (see http://ea.panam.edu/pforge/services). Many of these competencies are integrated into the high school curriculum and lend themselves to applied and intergenerational learning. They include business planning, marketing, record keeping, basic computer, Word, Excel, Quicken accounting and bookkeeping, and basic and advanced Internet. Many of these business-software applications have video tutorials, print how-to guides, and offer online tutorials and support groups. A wide range of templates and models for business plans and marketing plans is also available on the Internet, such as, for example, a full business plan for a residential landscape start-up, a venture of interest to many Latinos.

GIS is a specialized software application that might appear to be of limited direct interest to Spanish speakers in the Yakima Valley. My recommendation in this instance is to raise the cognitive awareness that spatial data might be a useful tool for small businesses and community activism and that this is a skill set being introduced into the Washington State K-12 curriculum. The National Research Council (US) (2006) has focused attention on the importance of spatial literacy and competencies to informed citizens and community decision making:

> Looking to the future, informed citizens will need to use and understand the outputs of geographic information systems and the rudiments of geographic information science. How else will communities be able to make sound decisions about smart growth, environmental preservation, adequate water and sewage systems, and similar issues? (p. 28)

The first three levels in a seven-competency range were identified as public awareness of GIS and its uses, basic spatial and computer understanding, and routine use of basic GIS software. Although these competencies did not structure the current study, they confirm the parallel analytic thinking that I employed. Portland State University Institute of Portland Metropolitan Studies (2003), in a report on a community GIS project, reinforced basic awareness of GIS and its uses as requisite to valuing its affective use and seeing a need for developing the related competencies. Spatial data represent specialized computer use, but development of the skill set offers Latino youth a viable career path. It also offers the potential to engage in learning with intergenerational transfer and operational benefit in support of the household asset base or family business. For adults, utilization of the GIS materials now being developed for the K-12 audience and for 4-H groups has the advantage of introducing the GIS concepts with a less technical vocabulary. For over a decade, youth in Mexico City have been introduced to satellite-sensing technologies and GIS mapping in summer science institutes. GIS represents an area in which the knowledge base of the population in general is at a basic level and not dependent on English-language capability.

Agricultural holdings in the Yakima Valley are purchased with attached water rights. Newcomers such as the new Latino farmers are likely to have junior water rights that determine the irrigation water available to each land holding. This factor became evident to many during the 2005 drought. Access to a stable water supply is a central concern for family-farm operations, and agricultural use of water is an increasingly contested issue (see http://www.familyfarmalliance.org). A keynote presentation to the Family Farm Alliance conference in 2004 was an introduction to GIS. All of these factors suggest that spatial information and its use are pertinent to a farm household information repertoire. Additionally, agriculture in the Yakima Valley is site specific because of the highly localized and diverse microclimates and soils. Indeed, one of the reasons that the apple orchards in the Yakima Valley have not been replaced with crops more amenable to mechanical harvest, as happened in Wenatchee (Howell & Evans, 2004), is the particular terrain that makes mechanical harvest using standard equipment impractical. Site-specific farming is an area of global interest, and farm owner-operators who are more comfortable with learning in Spanish can access materials through Web sites in Spain.

Summary

The rationale underlying the recommendations outlined in this section can be best captured in the notion of learning toward capacity and capability building. They build directly on the areas of interest identified in the study findings and related these areas of interest to household-centered and intergenerational learning as a process of adaptive learning in keeping with acculturation toward sustainability of the family firm.

Significance of the Research

I carried out this study with the objective of making a contribution to knowledge that could benefit individuals whose daily lives operate within the constraints of economic poverty and who, seemingly as a result, are often denied dignity along with adequate return on their efforts.

One in five current immigrants to the US is Mexican, and the Pacific Northwest is a destination of choice among migrating workers and families. In contrast to the established Latinos of the region, migrant households tend to be younger and have larger families. Despite the day-to-day challenge of making ends meet, many of the migrants continue to be a major source of financial support for their families in Mexico. Initiated in the optimism generated by early adopters of home- and office-based Internet use, this study took a grounded approach and recognized that the transitory manual agricultural fieldwork demands and lifestyle would necessarily limit computer-based access to the Internet. The question was whether this would diminish interest or consequentially retard involvement and ultimately facility with this emerging technology. In recognizing the contextual factors, I identified migrant users among the novice users at public-access sites as a nexus of these dynamic forces. Therefore, in a nonintrusive manner, I sought to identify the potential for benefit as evidenced by such users in these sites. My presence at the public-access sites allowed me also to take account of the tacit dimension of what was explicit in the informant data.

The thematic findings identify adaptive learning strategies and socialization sites that some have found useful in extending their capabilities and confidence along with their tacit knowledge of mainstream practices, services, and choices. The significant study finding was that there is no broad prescriptive action that could be developed—no suggestion or support of any 'silver-bullet' policy initiatives with regard to the digital divide. This was due in part to the complexity and continuing change of the situation—continuing change in composition, priorities, capabilities, and status of Latino newcomers. Rather, my findings draw attention to the importance of established social networks as an information conduit and for sense making and knowledge construction pertinent to the local community context. The findings suggest that, as one of an array of information resources, direct access to the Internet and a computer might be of limited interest and minimal importance. Perceptions of the role of the computer and the digital divide continue to evolve through a combination of natural diffusion processes that build the individual's experience base as they acculturate to mainstream institutions and practices. Thus the children who are acculturating within the school system provide the impetus for a natural shift in perceptions. From the parents' perspectives, the children's school needs are often a factor that drives home the purchase of computers in Latino families. Adult engagement and needs, however, are not school or assignment driven. Selwyn et al.'s (2006) question still remains, "When is an individual's non-engagement with ICTs and ICT-based learning the result of a fully informed and aware choice and not a result of structure and circumstance?" (p. 191). The question of "fully informed" nonengagement is applicable to adults in general. It is not specific to ethnicity or socio-economic status, and requires further research.

This study looked to identify an alternative framing of the digital divide issues other than development deficit, lack of productivity, or victims of oppression. My goal was to contribute to the identification of alternative approaches to problem definition and, consequently, to what might be done to alleviate and disrupt what can become a cycle of poverty that some migrant farm families experience. The study took a pragmatic approach to respect individual agency and not contribute to the substitution of one dependency for another. The clear thrust developed over the course of the study and presented in this report has centered on agency and choice. I drew on the development, information behavior and ICT literature and constructs of organizational culture and behavior, social capital and adult learning. My conclusions and recommendations are consonant with Sen's (2000) notion of freedom as choice, and to the position of Selwyn et al. (2006), who advocated a "move towards a model of lifelong learning and ICT use based on choice rather than deficit" (p. 192). The other major definitional problem arises from the use of measures of household poverty—a relative measure—as a benchmark indicator. Similarly universal individual access to every mainstream technology choice is not an appropriate measure, whether the objective is social justice or development; and advocating programmed learning or participation that recognizes only mainstream institutionalized choices can contribute to dependency substitution and diminish self-reliance and self-organizing capabilities.

Over the course of the study the prominence of the digital-divide debates has receded. The current literature reflects greater recognition that, although ICTs and the Internet are part of various processes of change and adaptation, the change dynamic at play is not what sound bites such as *digital divide* suggest. Rural areas continue to be the most disadvantaged even from a policy perspective of the Internet as a utility and access as analogous to that of the telephone system. The place of computer-based access to the Internet in relation to the array of ICTS available is as yet undetermined. Although it is premature to appreciate the interrelationship between virtual and traditional social networks, a marketplace or consumer analogy is not appropriate. My findings suggest a need for research to examine the capabilities that are being diminished with the increasing substitution of technology-based information sharing and dialogic exchange, particularly among youth with a limited experience base in terms of in-person and self-organized socialization alternatives.

Reflections on the Study Methodology

In this case study I adopted a qualitative analytic approach and followed the accepted procedures as set out in Chapter 3. This was an appropriate approach for the research question with regard to the population group under consideration. I chose to begin with the perceptions of those who work with the population of interest without my having an applied understanding of the associated techniques to maintain both analytic rigor and interpretive scope. Building these methodological understandings proved to be time consuming and required a return to the methodological literature to a depth that I had not anticipated. I had undertaken the research to identify actionable outcomes, but a thematic analysis presumes universality and homogeneity and a steady-state situation such as that implied in Lin's (2001) social capital model. The analytic approach did not account for the heterogeneity of the population group of interest or provide a basis for substantive explanation with regard to multiple dynamic phenomena. The approach was appropriate for reconsideration of the development-as-growth perspective and preliminary identification of aspects of the research question and findings that could be subjected to further probing or realignment to more deeply address the issues that prompted the research. Reflection on research methodologies and the study findings reinforces what I find so exciting about the possibilities and questions raised by the next generation in the ABMS family of simulation tools.

Reflections on the Research Experience

At the outset of this experience I viewed the research component of the dissertation process as a mentored apprenticeship and completion of the research project as a milestone marking the move from novice to journeyman researcher—one who appreciates and understands what distinguishes the work of the master craftsman and can recognize gaps in his or her own work while presenting that work in a way that might be of wider interest and invite intellectual engagement. The experience was more challenging than it first appeared and more fraught with frustration than anticipated. As in life, one is guided by experience, and this particular apprenticeship certainly suggests that undertaking a qualitative research project requires a mentorship of a particular type—one that the novice comes to appreciate only after the fact.

This apprenticeship began with my drawing on the words of Parker Palmer (1993) in setting out my philosophy on learning as a lifelong journey—an orientation that underpinned this study and my approach to it. This time that I have spent within the academy has contributed to a deepened sense of self as I have continued to probe my assumptions and challenge my worldview. I had situated myself as a critical pragmatist and related this to Dewey's later emphasis on creative community in support of adult learning, an emphasis also evident in the foundations of university adult extension and the thinking of Alexander Meiklejohn (see Nelson, 2001). An identified influence on Dewey's shift in thinking was the work of Jane Addams at Hull House, where an art gallery, a music school, a theatre, and debates on philosophy and current issues were all aspects of adult newcomers' acculturating while ensuring that their cultural traditions were imparted to the next generation. A second shift in Dewey's thinking was from problem solving to meaning making. Kalton (1998) similarly reflected on propelling societal forces and concluded that "we are returned to the central role of self-cultivation" (p. 96). Kalton saw the need as what Confucians have taken as a central task for thousands of years—one "of understanding one's complex relational reality and the conduct fitting such a reality" (p. 97). As the study drew to a close, I returned to the foundations of adult education where the analysis of Elias and Merriam (2005) is similarly based on the belief that "true professionals know not only what they are to do, but are also aware of the principles and the reasons for so acting" (p. 11). They recognized theory and philosophy as "efforts of feeling and imagination. Philosophers first wonder at a work of nature or humankind; they follow this with the effort to imaginatively understand it in some meaningful manner" (p. 3). This was one of my objectives behind this research study. I undertook the apprenticeship to gain wider exposure to and greater mastery of a range of research approaches and tools that could be applied to subsequent research.

I take the world as reflecting a complex reality and acceptance of ontological complexity suggests at a minimum a counterpart of epistemological complexity. Over the course of this study so much time was consumed toward framing the study findings in a form bounded by current templates of thinking and narrative production. This appeared to be an inadequate approach from which to explain the complex interconnections and relational connectedness—family, cohort, kin and interests—that the study data suggested. I saw a resonance with my orientation and Davis and Sumara's (2006) description of complexity thinking; namely, as "an attitude that lies somewhere between the hard and soft approach that is concerned with the philosophical and pragmatic implications of assuming a complex universe" (p. 18). They identified complexity thinking as a way of thinking and acting that is framed by conceptual constructs of emergent self-organization, nestedness, and ambiguously bounded and adaptive learning. Indeed, as I looked beyond the data to the wider locale this was a reflection of what I was seeing and what my informants and the wider Latino community were likely to recognize.

As a genealogist, I have conducted research over a period of two decades that has resulted in the development of a longitudinal family database that encompasses family networks spanning five centuries in some cases and a comprehensive breadth and depth for the past century. The database represents an extensive population sample identifiable by using a variety of social-science variables such as, for example, gender, socio-economic status, religious affiliation and heritage. The process included extensive historical research and examination of primary and secondary data records and literature to find family members and situate them in their historical context to bring them to life as individuals, and it revealed imputed value systems and the impact of exogenous influences. That parallel body of ongoing in-depth research and a historical frame of reference provided a strong counterbalance to bodies of research built on a post-WWII North American perspective. Over the course of this study I read widely to develop an historical appreciation for the Yakima Valley and contiguous areas of the Pacific Northwest. I monitored local newspaper coverage of Latinos within the area. This background research on agricultural perspectives and historical reference points reinforced the cyclical nature of much of the theoretical discourse. Research down to household level with regard to some of the pioneer families reinforced many of the social-network dynamics that I had previously uncovered in my earlier genealogical research.

Elias and Merriam (2005) suggested that "theory without practice leads to an empty idealism, and action without philosophical reflection leads to a mindless activism" (p. 4). In the balancing of theory and practice they saw in Freire's work a challenge to adult educators to look beyond the institutions in which they work and see larger social goals. In contrast, my analysis and journey suggest that as social identities have become increasingly embedded in the workplace, and office cohorts have replaced the social cohorts that arise from family and church, seeing beyond the organizational perspective is more than challenging because alternative perspectives are increasingly outside our experience base and worldview. It appears that institutional insiders have a distinct mindset or worldview that has come to overshadow self-reliance and self-organization and has diminished appreciation for and capabilities in these critical life skills.

Reflections on Future Research Directions

This section presents suggestions for future research from three perspectives: (a) applied directions that have arisen directly from the study findings, (b) theoretic directions related to the study question and how it might be approached as a result of what I learned, and (c) theoretic constructs that, having completed the study, I would now approach in a different way.

My analysis identified e-mail as a core motivation for computer use at community public-access sites. Since I collected my data, youth are increasingly using cellular phone alternatives for communication purposes. Mobile phones now offer a range of connection alternatives from video to cost-effective text messaging. Future research is needed to gain an understanding of whether and in what ways such alternatives might open new doors to staying in touch in ways that might be particularly important for rural or low-income or newcomer households. Future research is also needed to examine the potential for obtaining services such as, for example, filing government forms using a mobile telephone rather than a public-access computer. Such examination could be explored as part of a more general investigation of mobile access in contrast to fixed-location home access and perhaps build on the survey that Wellman and Kennedy (2007) developed.

My findings identified Radio Cadena (KDNA) as a unique and significant Spanish-language information conduit in the Yakima Valley. Perhaps because of the study focus on ICTs, the findings did not distinguish the parent organization, Northwest Communities Education Center, which suggests that a more in-depth historical examination of the station and the center over their 30-year history might reveal insights that could have wider applicability. What is the confluence of factors that have given KDNA such a prominent place in the hearts and minds of Valley Spanish speakers? There is also a need for future research to examine the impact on the education mission of KDNA as newly arrived commercial Spanish-language radio stations fragment the Spanish-speaking audience.

My recommendation with regard to the Las Plazas Comunitarias program was based on the capability interests that I identified in the study findings. Now that the program is operational in Yakima City, it would be beneficial to gain a fuller understanding of both the program benefits and the implications of participation directly from actual program clients. It is important to differentiate the participants' perspectives in relation to household socio-economic levels and to gain a more nuanced understanding of whether participation in the program would have implications specific to low-income and/or rural households. Future research could take a comparative approach and analyze differences in participant experiences and outcomes between large urban centers and rural areas. Participation in traditional newcomer programs has privileged women, future research could examine whether such distance learning options might narrow the gender imbalance that has arisen in these types of programs.

The issue of privacy did not arise in my findings, although this was an aspect that Lin (2001) identified as significant to the cyber world. Over the period of the study the significance of notions of privacy with regard to the Internet has only increased. In addition, there appears to be a clear generational difference in the notions of public and private that goes beyond simply information to matters of behavior. This change with regard to notions of privacy also relates to increasing tolerance of surveillance and data-extraction and warehousing, capacities of which the general public seems unaware. This seems to be an area of particular interest to the Latino population that relates to what Fiske (1994) termed the *double consciousness* that US minorities require for survival. He related this interest to the changed nature of the notion of surveillance—the other side of privacy. Future research is needed to investigate the apparent societal shift and the wider implications as surveillance is not only tolerated, but also demanded as a monitoring and control mechanism of 'the other.'

The study findings suggest that computer-based access to the Internet might well be of limited economic benefit to the rural poor. The question that this raises is whether socio-economic differences in usage might be a realistic reflection of greater benefit accruing to those at higher socio-economic levels or whether there are certain life stages during which it is more important, as, for example, in a student situation. Such future research would contribute to identified research needs. Selwyn et al.'s (2006) contend that "mapping how ICTs and ICT-based learning fit with everyday life of adults is a vital task for the research community" (p. 1). Savolainen (1999, 2004) identified the same need with regard to seeking information by using the Internet. Future research is needed to determine whether this fit with daily life is different for rural, newcomer, or minority households.

Closing Summary

This study was initiated as ICTs: Tools of Agency in a Connected World. It closes with the recognition that the tools are secondary to informing and communicating as processes central to agency and the building of relational connections. These in turn are central to developing strong individuals and capacity for grassroots leadership. The study was initiated in the Pacific Northwest and centered in the Yakima Valley because of the strong Latino community who, in terms of community vitality, represented for me a strong minority group under continual renewal from both new migrant flows and ongoing acculturation across the wider community. In fact the Yakima Valley has at least three strong and distinct cultural groups: the English speakers, the Yakima Tribe and the Latino community. I felt that this unique study site, one less conflicted by the complexity of urban tensions, might offer unique insight into leadership and negotiation of the common good across differences while maintaining the strengths of those differences. I believe it has. In doing so, this study provides a foundation from which to reconsider community development, not as economic growth, but as a vital process of adaptive cultural change and a dynamic balancing of tradition and innovation.

The findings in this study are reflective of individuals who are reconsidering traditions in light of wider alternatives; and, are more likely to find themselves faced with choices that raise issues of ambivalence and, although they challenge Schein's (2004) notion of 'managed' change, they are consonant with his notion of culture change, which inevitably involves unlearning as well as relearning, and is "by definition, transformative" (p. 335).

EPILOGUE

My dissertation characterized the Yakima Valley and examined public-site access to information and communication technologies for Spanish speakers. The question now under consideration is, How has change insinuated itself into the nature of the Yakima Valley over the half decade since I collected the study data? What elements among these changes have altered Spanish speakers' perceptions of their communities and, reciprocally, their community's perception of them? Although driven primarily by technological change, these short-run changes result from the implementation of changed technology within the community and its socio-economic impact. In the following sections I look at changes in the socio-economic and ICT landscape and relate them to the extended Yakima Valley region.

Mainstreaming of Latinos in Spanish

One change in the Pacific Northwest region over the last five years is the more visible mainstreaming of Latinos in Spanish. This could be an example of the quiet revolution, a notion that was suggested at an Association of Women in Development (AWID) conference in Guadalajara as Latinas from the US speculated on the possibilities if Texas and California had remained part of Mexico. Scenarios evoked the suggestion that perhaps the spread of TexMex music and cuisine across the US was a different means to the same end, or a quiet revolution. The higher visibility of dynamic cultural change within the US in turn iterates with changed establishment perceptions of Latinos that recognize their achievement of critical mass of income and consumption, of student bodies, and of electoral votes and community agendas.

Mainstreaming of Latino culture is a domestic response within a context of globalization. Globalized markets are in a continuous loop of fragmentation, segment growth, and then further fragmentation, whether in products, skills, or cultures. The attainment and recognition of critical mass by Latinos is part of an evolving multiculturalism that comes as a result of a reluctant recognition and tolerance of diversity that had its origins in Eurocentric religious and ethnic battles. Post-war US society reframed the movement for recognition to encompass civil and feminist rights largely in response to affirmative-action agendas. These allowed for the introduction of the notion of being an American hyphenated by various cultural, gendered, ethnic, and racial subgroups. Language commonality remains a contentious issue, with federal funding for immigrant support centering primarily on English instruction as a means of achieving a national foundation for communication of values and concepts, particularly legal and commercial. Spurred by the illegal immigration reality, the US racial dialogue has evolved from the post-civil rights bi-polar—Black or White—to recognize the browning of America among a wider spectrum of racial and ethnic subgroup identities. The American iteration reinforces a global trend of diminished emphasis on acculturation toward homogeneity—a melting pot process. In part, this change has been assisted by the disappearance of major systemic melting pot dynamics, such as, for example, the draft. It is further reinforced by a global shift in focus from Europe to Asia that has magnified the degree of difference between the US population and the objects of global political, commercial, and cultural action. Since the 1990s what has been evolving appears to be a genuine multiculturalism, one that is exemplified by celebrity figures who, although raised in the US, are affirming their cultural roots. All of these factors have contributed to the greater willingness of government at all levels to provide access to information in multiple languages, a response made possible by technological changes and a dramatic reduction of the associated costs of so doing.

Another dramatic post-9/11 change has been the merger of the US Immigration Service (NIS) into Homeland Security, which has altered the narrative and reinforced the 9/11 backlash. Perceptions have been altered from comparatively benign illegal immigrant to terrorist penetrating the security of the US. A scanning of recent newspapers for immigrant quotations indicates a shift in discourse from individuals' feeling unwelcome to now feeling fearful or even threatened. In households where some members might not be legal residents, the family could come home to find that one parent has been detained, and in some instances even deported, during the course of the day. Indeed, there is a much more public posture on the part of government to expel illegal residents whose children have been born in the US. With regard to employment, a number of states are enacting legislation with much more punitive consequences for hiring nonlegal residents. Such changes have impact on the agricultural workforce. They follow on changes that have similarly limited access to health and social services. The laws and challenges to them are working their way through the courts in various states, such as, for example, Arizona. The net effect, however, is that the lives of many Latinos—whether legal or not—have been made more insecure.

Recalibration of the Latino Audience

In 2000, when the US census data raised public awareness of the extent of the Latino population, the information grounds for Spanish speakers were relatively barren. Newcomers in the Yakima Valley had to reach out and, as I noted in my findings, dig for information, which they shared through the social network. Information and communication access was a challenge at each point throughout the system. What a change a decade has made! In contrast to the previous decade, the availability of local information in Spanish has been fostered by recognition of the purchasing and voting power of Latinos—many of whom prefer to speak Spanish. In 2002 I observed a proliferation of commercial Spanish-language radio stations. More recent is a change in attitude whereby the broadcast media recognize the US Latino audience as not distinguished simply by language preference. Television, a medium recognized as a major information resource for Hispanics, is recalibrating offerings that target this audience segment. What was formerly accepted as a homogeneous advertising market now reflects differentiation into niche subgroups with value and lifestyle differences. Although the expansion of Spanish-language media represents a commercial response to competitive market pressures, it is also a factor that in turn contributes to the mainstreaming of Latino communities. These changes were taking place in radio while I was in the Valley. The changes in television are more recent and part of the digital phase-in and broadband expansion. Among the economic considerations that facilitated these changes were dramatic cost reductions for local station operating costs through integration of national and international programming into their broadcasts.

The growth and evolution of the Pacific Northwest broadcast market is exemplified by Fisher Communications based in Seattle, which, in 2006, changed its market strategy to focus on Spanish-language television. The company recognized in the Latino community a strong and growing market that, as the new CEO explained, "behaves more like when television first started. The families are bigger, they watch television together, they tend to watch one channel and that's Univision and they're multigenerational homes" (TV Newsday, 2006, Why the Big Spanish TV Play section, ¶ 1). The CEO identified Yakima as one of the Hispanic audiences that, although just noticed, has been exponentially growing over the years. In 2007 the Fisher network instituted a Spanish-language news segment entitled "Noticias Noroeste" ("Northwest News") as the first "locally produced, all-Spanish commercial news program to hit the airwaves in the Puget Sound region" and designed to reach "the region's fast-growing Hispanic population that is both thirsting for local news and ripe for advertisers" (M. Valdes, 2007, ¶ 6-7). The Hispanic news group has two reporters—one in Seattle and the other in Portland. Also in 2007, the Daily News (TDN) announced the addition of Spanish-language content to its online edition to serve the growing Hispanic communities of the Lower Columbia region (see http://www.tdn.com). These are selected examples of local Pacific Northwest media initiatives to reach their Latino audience segment. The approach, however, is being played out at national and global levels and to a wide range of market segments.

Concurrent with the initiation of Pacific Northwest media services focused on local Latino communities and content, access to US and global Spanish-language networks and services dramatically expanded across the region. V-Me is the first national Spanish-language network to be carried by US public TV stations. The network objectives are to entertain, educate and engage families in Spanish. Their programming features world-class preschool content in Spanish, such as, for example, "Sesame Workshop" (V-Me, 2008). On the commercial side in 2007, the Azteca America Spanish-language television network formed an alliance with Terra Networks, the leading Internet portal for the US Latino audience (see http://www.terra.com). The partnership is creating an Internet site to showcase Azteca America content via online video. A press release in August 2007 noted that

> Terra Networks, with presence in 18 countries in the U.S., Spain and Latin America, reports an unprecedented number of sports enthusiasts watched the Pan-American games live from Rio de Janeiro this year, via streaming video or on demand, many of whom were viewing more than one competition at a time. A record breaking 14 million streams or VODs were delivered by the new Terra TV 2.0 platform during the two week long competition. (Terra, 2007, ¶ 1)

This interplay of market-driven content programming and on-demand delivery further contributes to Spanish speakers' comfort and/or facility with leading-edge information communication technologies. This melding also reflects what has become the expectation of youth and business; namely, "immediate access to any content through any device" (Macias & Temkin, 2005, p. 14). Such possibilities have been made cost effective by various technology changes that have dramatically reduced the delivery costs while expanding the audience and thus increasing advertising revenues. As framed in the public debate with regard to BBC in Britain, among the questions that cannot be answered at this time is whether the national and global players will overwhelm the local networks.

Mobile Media Diffusion

The melding of text, audio, and video in multimedia cell phones appears to suit the embedded networking nature of the Latino community and the wider society that increasingly defines itself as 'individuals on the move.' Although based on a small sample, a study on how Americans use and think about their cell phones found that Latino cell owners are more likely than Whites to use their cells for multimedia activities such as taking pictures, text messaging and e-mail, recording video, surfing the Internet, and playing games and music (Raine, 2006). This finding is consonant with those of a wider study in which it was noted that Hispanic cell phone users represent a more youthful demographic (M:Metrics, 2007). Although the question of whether these results are a reflection of a Latino predisposition or the youthfulness of the Latino demographic remains largely unanswered, the infusion of this practice reinforces it as Latino throughout the community.

As I have argued earlier, to focus solely on the technology risks the fallacy of currentism, and the central role of the telephone in staying in touch with family does not appear to have changed. In Yakima in the 1990s people lined up in particular locations on Sunday to call home. There was a need for a land line, and calling cards that bypassed long-distance operators were not in widespread use. Only in the late 1990s did long distance telephone rates drop dramatically, and only in the last few years has this phenomenon become global. Per-minute costs to Mexico have dropped from well over $1.00 during off-peak times to less than three cents any time. The precipitous decline in costs and the wider accessibility arise from changes in both Mexico and the US. Even at the time that I collected my data there were a limited number of cell phone service providers and service offerings. Now a basic phone with camera is generally free in exchange for a term contract, and current service offerings facilitate 24-hour-a-day, 7-day-a-week connection to family and close friends at minimal cost. Service offerings for the Latino market offer special rates for calls to Mexico and even for roaming calls from Mexico. All of these factors have contributed to an order of magnitude increase in accessibility that further contributes to the likelihood of having a critical mass of cell phone users within one's social group. Thus the technology, its reliability and accessibility, and a changed cost structure all allow for international calling in the daily life routine rather than as a weekly event among Latinos in the Yakima Valley. This local reality reflects a global change that has redefined personal and business communication worldwide, including in rural agriculture. Cell phones have gone from inconvenient, expensive, and accessible to few to instant, cheap access to many. Most important, instant access to others can radically diminish feelings of alienation for newcomers and outsiders.

Coincident with the melding of cell phones and multimedia was the roll out of virtual identity and social networking websites, such as for example Second Life in 2003, FaceBook in 2004, and YouTube in 2005. The growth in their user base has been explosive and global over the last two years. Accessibility discussions centered on ensuring equity of access to information. In contrast, social networking centers on the fundamental human need for acceptance. The focus of these next-generation social networking sites reflects this and provides identity validation that is self-reinforcing based on interaction (see, for example, Croft, 2007). Information as text requires the ability to read and write and a right-brain response; it fosters discussion of ideas in support of melding or building consensus, and it reinforces a linear mindset. The social networking dynamic is one of viral distribution, or diffusion of ideas at an exponentially increasing rate. At the same time, high-speed transmission has shifted the emphasis to video which further fosters uniqueness or nonstandardization and requires a switch from right brain to left. The interplay of ICTs and social networking is iterative, with each iteration giving rise to its own inherent changes and leading to something different again. At the same time social networking is part of a self-distribution mechanism that in turn triggers network effects. Thus the interplay of ICTs and social networking is a work in progress, and, in terms of conceptual appreciation, it is uncertain what we are looking for or how to characterize what we are seeing. In 2008 YouTube uses the same bandwidth as the entire Internet used at the turn of the millennium. Two questions that arise are: What would happen if YouTube or its users had to pay for that bandwidth? and Why should they not?

Mobility and Online Education

Over the period of my study the discourse of a digital divide focused simply on deficiencies of access and information has become so passé as to be almost historic. The fact remains, however, that newcomers living in rural areas and having a household income below the poverty line continue to be more disadvantaged in exploring and/or utilizing some of the possibilities offered by various ICTs. In Washington State reaching out to this group continues to be the focus of the Connected Communities organization, a statewide collaborative project that involves the nonprofit Center to Bridge the Digital Divide of Washington State University (WSU), (see http://communitiesconnect.org). The focus of my recommendations, however, was on learning in Spanish and moving forward while acculturating and learning English, and I identified the Plazas Comunitarias (the CONEVyT learning centers) as having potential.

Harvey (2008a) outlined the impact of the CONEVyT learning centers in Washington State over the period 2006 to 2008:

> - 1,247 people registered to receive optional academic certificates in Washington; double that number using the system for educational purposes;
> - in 2006-07 about 325 adults registered for classes in Yakima School District (YSD) of whom 90 attended daily sessions;
> - across the state over 800 parents were formally taking a variety of courses; and
> - a dozen illiterate parents in Yakima have learned how to read and write in Spanish using the online system. (pp. 1,18)

Although the courses are free to Mexicans resident in the US, the educational value of the courses has been estimated at $50 to $100 million. Washington State has taken the lead nationwide in correlating the courses to the state K-12 curriculum and to the US GED. This comes as a result of the perceptions and strategic efforts of Ben Soria who was appointed Superintendent of the YSD in 2000. He was selected as Superintendent of the Year in 2006 based on the substantial percentage increases in the pass rates for YSD K-12 students on the state examinations in reading, writing, and math. In December 2007, at the *Portals in Collaboration* conference, Ben Soria shared with educators from across the US the YSD experience on the use of the CONEVyT online curriculum. He noted that Yakima

> is a very conservative area politically and steeped in tradition. But during the past decade the demographics of the school district have changed dramatically, to where over half of the students are now Hispanic –

> mostly from Mexico. And many of the students arrive at school without knowing how to read, write or speak English. (Harvey, 2008b, p. 5)

When faced with the failing grades and drop out rates of immigrant students, the question Ben Soria asked was, "Why not offer this practical, inexpensive approach and allow them to be successful while they are mastering English?" (p. 5). He extended the approach to serve Spanish-speaking adults in the community on the basis of: "How can you ask parents to help their kids if they can't read? They can't help their kids unless we help them first" (p. 17). As he observed, the use of CONEVyT is "so practical that some people fail to see it" (p. 17).

In using the CONEVyT system, whether through YSD or the Plazas Comunitarias learning centers, Spanish-speaking adults are learning online. In 2006 the Washington Workforce Training and Education Coordinating Board identified online learning as key to training rural health care workers and noted that demand for it is growing "even in western Washington where there are a plethora of local educational institutions offering health care training" (¶ 12). One such online program allows practical nurses to become registered nurses without taking time off work. Diminished participation in the American lifestyle at their homes in both the US and Mexico is a consequence of the recent economic downturn for many Latinos in the US. In the Yakima Valley, off-setting possibilities to the impact of the downturn have arisen in the health care field. The Yakima Valley Hospital is already the largest single local employer (Yakima County Development Association, 2008). In addition, the Pacific Northwest University of Health Sciences, the first new medical school built in the Pacific Northwest in over 60 years, recently opened. All of these factors reinforce the potential of online learning for rural residents, including Spanish speakers.

The rise of ICT based social networking in a context of globalization has generated acceptance of topics, languages, ideas and humor that are other than mainstream Anglo in nature. The breadth and richness of information available via the Internet and social networking can enhance pride in a heritage that youth raised in the US do not necessarily know. Across the Latino community, with its particularly youthful demographic, all of these factors contribute to positive reinforcement of a shared culture and, when combined with network access into Mexico, give rise to transnational Latino identities as much as American-Latino identities (see, for example, Rinderle, 2005). At the same time Latinos and diverse Latino subgroups are among the many identity groups redefining their place within the US. Youth are media consumers but whether their media use for edutainment and social networking builds capability in using ICTs and media as strategic tools remains a question. Registration and mobilization of minority voters is one area where strategic use of cell phones and text messaging is evolving, and Latinos are the fastest growing minority voter group in the US.

> A recent study by Working Assets, Princeton, and the University of Michigan revealed that text messaging reminders are effective at bumping turnout by up to 5%, at the incredibly low cost of $1.50 per voter (compared to $30 for door to door canvasses). (Connery, 2007)

As exemplified in this example the relentless underlying dynamic of change is economic power which at this juncture is embodied in technological change iterating with exponential cost reductions and niche marketing. The question remains: Is such voter response representative of self-organization or manipulated consumer response? Is it a one time event participation or the exercise of an informed decision and the basis for sustained engagement?

The post-war period with its very high degree of homogenization and conformity might well be an historical exception. It gave rise to the organization mindset which in turn gave rise to an anti-establishment counter-culture. Moreover, as Hofstede (1980 observed, management is an American concept and economics is an Anglo-Saxon discipline. What was co-incident with the mindset was the reality of enormous barriers to a power centric information distribution system where economies of scale prevailed, such as, for example, publishing, movie production, telephone systems, and the recording industry. Digital technology has proven to be highly disruptive, if not destructive, to these industries and the control they exercised. It has reduced by orders of magnitude the costs of acquisition, processing, storing, transmission, and distribution of knowledge and in so doing has democratized knowledge as power. In the Yakima Valley, as elsewhere, access to information continues to dramatically increase as has access to the tools of knowledge distribution.

In the study I introduced the notion of information borderlands situated between multiple communities of trust and those of the establishment. Consonant with Burt (2005), Hofstede (1980) found that "looking across the border is one of the most effective ways of getting new ideas ... However, applying these in one's own setting calls for prudence and judgment" (p. 374). The application of new ICTs, and doing so in an unfamiliar setting, calls for even greater prudence and judgment. Even in the Yakima Valley where they constitute a significant minority, or even a majority, Latinos continue to recognize a need to be aware of how they are perceived as a matter of survival. They need to be ever vigilant about surveillance efforts and government rules. In this study I emphasized the positive potentials of ICTs and attempted to identify how they might be beneficially used. There is an equally powerful negative side of which youth acculturated within the US school system seem unaware. At the same time there appears to be an implicit assumption that youth are media savvy and information literate based on their engagement in technology mediated activities. All of these factors reinforce recognition of the reality that the interplay of ICTs and social networking is a work in progress with many dimensions yet to be investigated.

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APPENDIX A:

ACKNOWLEDGEMENT AND CONSENT FORM

I acknowledge that I have read and understand the contents of this letter and consent form with regards to the proposed study. I understand that

1. My name will not be mentioned except and unless this is in connection with statements that are part of the public record.

2. Everything I say will be kept confidential and anonymous; no comments made by me will be associated with any organization in any written materials or presentations.

3. Themes and concepts will be taken from the transcribed interviews and discussions without specific reference to me, to other participants, institutions, agencies or organizations.

4. Themes, concept and issues will be used in the researcher's Ph.D. dissertation, oral examination, any final reports for participants, as well as in future reports, presentations and publications.

5. I can withdraw from the discussion or answering any question at any time and with no penalty.

6. I can contact the researcher or her supervisor if I have any concerns or questions regarding the process.

7. Although interviews and discussions may be audio taped, these tapes will be destroyed upon completion of the researcher's doctoral program. Questionnaires, transcribed records of interviews and focus groups along with all associated field notes will be securely stored and then destroyed in accordance with University of Alberta policies and procedures.

I have read and understand the processes and conditions for participating in this research study and I, ________________________, give permission to Patricia Rempel to include me as a participant in the research described and under the conditions specified above.

______________________________	______________________________
Signature	Date

APPENDIX B:

INTERVIEW GUIDE: PROVIDERS

A. Introduction

> The UN notes that "in the past decade advances in information technology have facilitated a global communications network ... providing unprecedented communication opportunities to organizations and individuals."

- What does the term 'communication opportunities' in information technology mean to you?
- Would you describe those living in rural areas as disadvantaged with respect to participation in these communication opportunities?
- How would you briefly describe what your organization does in relation to information communication technologies (ICTs) - access, content, programs, services, training, other

B. Program Goals

- Please identify key programs or services your organization offers to benefit rural clients? Spanish speaking clients?
- How are such programs intended to benefit these rural clients? Spanish speaking clients?
  - do they focus on particular skills or attitudes, change initiatives, lifestyle, etc.
- What constraints, problems or difficulties do you encounter in trying to achieve these goals?
  - what are you doing to counteract these constraints?
- Do you have some examples of successes you have had?

C. Audience/Target client group(s)

- Please describe your rural audience? your Spanish speaking audience?
- How would you describe the expectations these clients have of your programs and/or services
  - what do they identify as their information/communications priorities
  - which of these expectations are being met or addressed
  - do any of these expectations require policy or structural changes beyond your organization
- Do you perceive a lack of interest or understanding of what could or should be expected among these clients? If so, to what do you attribute this?
- Looking at ICTs such as radio, newspapers, television and the Internet that might be used to reach your audience, which of these do you use?

- for those you use, what are the constraints in its/their use
- for those you don't use, is there any interest in using it/them

- How significant is the client social network or 'word of mouth' in extending the reach and the impact of your programs with rural clients? with Spanish speaking clients?
- What have you found that rural or Spanish speaking clients really respond to?
- What problems or difficulties do you encounter in reaching your audience

D. Community Partners/Links

- Do you have partnerships or links with any other community organizations? as for example? If so, how important are these relationships?
- Are any of these partnerships or links with rural or agricultural groups? with Spanish speaking groups?
- Is staff outreach in the community important in promoting your programs/services?

E. Moving to the Future

- Looking at the diffusion of ICTs within your organization, what is the impact of ICTs in your communications within the organization? in your work with target client groups?
- Looking back over the past five years, how would you highlight your experience with ICTs in terms of your expectations of what the use of the technology would accomplish against what the actual outcomes were?
- If you were the CEO of a new organization with the funds to address the most important information and communication needs of rural clients, what would your priorities be and why? in addressing the needs of Spanish speaking clients?

APPENDIX C:

LATINO MIGRANTS AND SMALL FARM OWNERS

In this section I outline some of the heritage influences which contribute to the diversity that exists across the Latino population of the Pacific Northwest. I then outline the long tradition of cooperation, shared learning, and entrepreneurial scaffolding among Latino migrant workers and small farm owners. In closing I provide current examples of cooperation and exemplars among the Latino small farm owners of the Yakima Valley.

McWilliams (1948/1968) grappled with the issues of choosing a title for his book that told "the story of Spanish-speaking people in the United States" (p. 7). He noted that, although "there can be no doubt that the Spanish-speaking constitute a clearly delineated ethnic group,... one must also recognize that there is no more heterogeneous ethnic group in the United States" (p. 7). Even among the Spanish speaking, these underlying differences were and continue to be reflected in identity perspectives and decisions made on nomenclature. McWilliams settled on the title *North from Mexico*, which reflected "a process, a movement, a point on the compass. For it is the direction in which the people have moved that has given unity to their lives" (pp. 9-10). The Spanish-speaking people are, however, "as firmly rooted in the Southwest as a forest of Joshua trees" (p. 9). Indeed, "they are not interlopers or immigrants but an indigenous people" (p. 9). This reality is reflected in the use of the term *migrant* rather than *immigrant* in much of the literature related to Spanish speakers in the Americas.

Texans of Mexican heritage were among the founding families of the Texas republic—families deeply divided by allegiance choices between Texas and Mexico. Some of these Tejano families who had followed the crops as far as the Pacific Northwest for generations later settled there. The treatment of Mexican-Americans of color in Texas and other states was tied to the treatment of Blacks in the southern states—treatment that initiated the civil rights movement. Some, although they were US citizens, had been included in the Mexican repatriation of the 1930s. As migrant farm workers, they worked alongside the workers from Mexico. For many Mexicans a pattern of working the harvest in the US and spending the winter in Mexico was entrenched over the two decades of the Bracero temporary farm worker program (1942-1964). Unlike many immigrants with overseas roots, those from Mexico also had a tradition of ongoing engagement with their home communities. Some Latinos in the Yakima Valley also self-identify as Chicanos, a movement in which education was a key area of civic contestation. Evident in the Yakima Valley are leadership skills developed through experience in the school of political activism—skills developed within and tempered by the US political and education systems and reflecting a strong sense of history and social justice linked to the farm worker and civil rights movements. Among current business, trade, and professional community members and leaders in the Yakima Valley, these dimensions are part of the collective identity and the Pacific Northwest community fabric heritage.

Longitudinal studies of the Mexican social networks over many years have demonstrated an iterative back-and-forth of ideas. Recent researchers suggest that the originating areas and range of destinations of these indigenous migrants has dramatically expanded: "Researchers recently found license plates from thirty-seven different US states just along the main road of San Juan Mixtepec, Oaxaca" (J. Fox & Rivera-Salgado, 2004, p. 1). However, Cornelius and Díez-Canedo Ruiz (1976) found that 167 emigrants from one rural community "were working in at least 110 different US localities dispersed through 19 different states, as of July 1975" (p. 14). Their wider study encompassed nine rural communities of Jalisco, Mexico, an area with heavy out-migration. Temporary migration to the US from this area of Mexico had been persistent "at least from 1884, when the railroad linking Mexico City to El Paso, Texas—and which passes through the region—was completed" (p. 3). Prior to 1910, "there were substantial numbers of people from this region working in the mines of Arizona, Montana, and other western states" (p. 3). The majority of the migration was temporary for six to eight months per year. Moreover, their study of rural Mexican migrants found that migrants returning from the US brought back crop innovations such as carrots and strawberries.

The Mexican migrant population also reflects Mexico's ethnic diversity. After 1910 the Mexican government imposed Spanish as the national language to provide a common base for communication and to nurture a Mexican identity. Whereas it had been the language of the elite, it then became the language of instruction in schools. However, "despite five centuries of pressure to assimilate, at least one in ten Mexicans reports to their national census that an indigenous language is spoken in their household" (J. Fox & Rivera-Salgado, 2004, p. 2). The depth and breadth of this rich diversity of Indigenous populations is not apparent outside Mexico:

> In absolute terms, Mexico's national indigenous population is the largest in the hemisphere, with approximately one-quarter of the Indians in the Americas as a whole. In relative terms, at least one-tenth of the Mexican population is of indigenous origin, according to the government's relatively strict criterion of indigenous language use. (p. 2)

Mexico has 62 living languages that the government has acknowledged. As noted in the findings of this study, many of the adult newcomers from Mexico arrive speaking both Spanish and an Indigenous language.

As J. Fox and Rivera-Salgado (2004) observed, Mexico is "a multiethnic society in which basic questions of indigenous rights ... remain fundamentally unresolved" (p. 5). Indigenous migrants face "discrimination from other Mexicans as well as from the dominant society in the United States" (p. 4), and both Indigenous peoples and migrants are "seen, especially by Mexico City political elites, as less than full citizens" (p. 5). These Indigenous and rural Mexican migrants arrive in the US with a range and depth of collective action experience and a resiliency that they apply to the resolution of their concerns. This influences "their decisions about who to work with and how to build their own organizations in the United States" (p. 5). Warren (2001) and D. Rodríguez (2002) similarly found that Latino political coalition building in the US is a difficult and challenging process in these complex and diverse communities.

A group of young Latino writers from Yakima introduced the Mayan heritage that is embedded in the Yakima Valley as they explored and celebrated their dual identities (Bodeen, 2002). María Guadalupe Barriga, who was born in Yakima but grew up in Michoacán, Mexico, explained her deep attachment to both of these places, each of which is a part of who she is. The students have given voice to farm workers through their parents' stories that include experiences from Mexico and the Pacific Northwest. These young writers took on the role of *abrecaminos*, "the ones who make way, who look into themselves, who look beyond themselves. Abre, open. And camino, way. ... One who opens one path opens many" (Bodeen, 2002, p. 11). They were doing this in the *testimonio* tradition of telling stories, bearing witness, giving testimony:

> The farm worker does not know how to write his story. It takes two people to do a testimonio. The interviewer finds a story that reflects the lives of others and finds a common experience, a universal. ... The person telling the story is the story. It's a story shared by others. (p. 11)

These traditions include Indigenous ways of knowing and a strong link to the land might be among the reasons that a high proportion of Latino farmers choose to farm organically. The young students are seeking to balance two sets of traditions in which they are rooted. In their history of the Pacific Northeast, Garcia and Garcia (2005) elaborated on the distinctions pertinent to Americans of Mexican heritage and posit the uniqueness of that heritage within the Pacific Northwest, particularly the Yakima Valley.

In a study of interpersonal communication and the migration decision, Howenstine (1989) found that many Mexicans coming to the Yakima Valley moved toward an expected or arranged job. He identified as typical the experience conveyed by one of his respondents who "is happy in the Valley and hopes to live in Washington for the rest of his life" (p. 252). After a disheartening first year,

> over time life improved: he learned to stand up for his rights, the field work became second nature; homesickness ended when his family moved to Washington; and he became more comfortable with English, and also with the variable Washington climate. He also established a regular employer-employee relationship at three orchards, and now works virtually year-round. All these things made life easier. (p. 253).

This establishment of a regularized employer-employee relationship is a variation on an entrepreneurial orientation identified among day laborers in Los Angeles (Valenzuela, 2001) and one that is unlikely to be accounted for as part of self-employment surveys. As with the day labourers, Latinos working as farm workers while incrementally building an asset base over time as grower-sellers or producer-sellers (Velázquez, 1993) and participants in farmers' markets (Hinrichs, Gillespie, & Feenstra, 2004) could be part of the Mexican entrepreneurial anomaly in that they too would be undercounted.

In Washington, WSU Extension and USDA are reaching out to Latino farm owner-operators through RCDR. In 2002 Luz Bazan Gutierrez, founder and president of RCDR, received a federal grant to establish a Latino farmer program. The *Tri-City Herald* interviewed Dr. Malaquías Flores, the program director, in 2002. He observed that, among the Latino owner-operators in the Yakima Valley, those who do not speak English do not know where to start. In addition, many have migrated from countries with corrupt or dysfunctional governments, and they are skeptical about anything that involves a federal agency. The findings of V. Garcia and Marínez (2005), which reinforced those observations showed that without the Latino social network assistance and "irrespective of the capital at their disposal, new immigrant farmers would not know how to start, and could run the risk of debt accumulation and business failure" (p. 24). Among the reasons they identified for nonparticipation in USDA programs were (a) the perception that immigrants were excluded, (b) distrust of government, and (c) a fear that they might be fined for some operational irregularity. Moreover, the newcomers had learned firsthand as *campesinos* in Mexico "that state assistance comes with strings attached" (p. 11). Since 2004, Dr. Flores has continued his work with Latino small farmers in the Yakima Valley as part of WSU Extension.

With roots in Chihuahua where his family had a small bean and corn farm and graduate degrees in agronomy and agricultural extension education, Dr. Flores spent a decade teaching rural families in Latin American how to maintain their household on very small land holdings. As V. Garcia and Marínez (2005) found, for Latino blueberry farmers in Minnesota, although economic viability and profit were important, they were not the prime motivator:

> More than a profit-generating activity, farming is a way of life for them and their families. The majority resides on their farms and grows a *milpa* (corn patch) and raise small livestock for home consumption. The farm is also used to teach children important values and beliefs. (p. 24).

This sentiment is evident in the Yakima Valley also. As noted in the study data, these small-holding farmers have introduced the raising of goats into the Valley.

Hilario Alvarez is among those who participate in the programs offered through the RDCR Center for Latino Farmers. The Alvarez family has been featured as a 'classic American success story' in the National Immigrant Farming Initiative. The family came to the Yakima Valley some 25 years ago and began farming on leased land. They now farm 45 acres, which they own. They have an established a local subscriber client base and, since 1991, have been selling at Seattle's Pike Place farmers' market. The Alvarez Organic Farm was the focus of a Northwest Direct Marketing case study (see DePhelps et al., 2005, 2006). A 2007 interview with Hilario Alvarez and Malaquias Flores is available on YouTube (see http://www.youtube.com/watch?v=vF0SnXuhq10).

In 1999 Mr. Pete Garza, president of the Hispanic Growers Association and an organic fruit grower, stated that field workers "who stay often need help getting rooted in the community and business" (Lee, 1999, ¶ 14) and that there was growing interest in buying orchards among Hispanic growers. For example, "Jesus Humberto de la Torre once worked crops in the Yakima Valley illegally for 49 cents an hour. He eventually became a US citizen and recently bought a 43-acre orchard near Yakima" (¶ 17). Velázquez (1993) also identified this long-term incremental path in the southeast US, where Latino migrant workers were transitioning out of poverty by "learning the business end of farming ... and finding a place in the nation's economy" (p. 140). She reported that there are three stages of migrant "business people who have learned to combine their knowledge about the American economic system with their skills as farmworkers" (p. 140) and that many migrant Latino farm workers "have strengths and values that are ignored and mislabeled" (p. 147). V. Garcia and Marínez (2005) found that in Minnesota, "farm ownership among the Mexican immigrants is made possible through resources available from social networks in addition to individual initiative and hard work" (p. 23). Moreover, because the small blueberry farms generate only enough income to pay the mortgage and crop production, off-farm income is essential. These studies along with Yakima Valley newspaper accounts reinforce the steadfastness with which many farm workers move toward building their knowledge base and business skill sets toward a position of farm owner-operator.

In 1999 Alfonso Garcia, Director of the Yakima Hispanic Growers Association, observed that Hispanics, in contrast to some Anglo farmers who were giving up on apples, were optimistic: "Hispanic growers have been able to sell their fruit even in tough times through international connections with other Hispanics" (Lee, 1999, ¶ 20). One of those connections is the SuperMarket Coop, in which RDCR is a member. The SuperMarket Coop includes a wide range of participating organizations across the US, such as the Farmworker Association of Florida; the Hmong American Community of Fresno, CA; the Intertribal Agricultural Council of Billings, MT; and Homeworkers Organized for More Employment, ME. The Mexican arm of the co-op includes groups such as Alborada de San Luis Potosi, a group dedicated to education and training for agricultural production; and, Frente Democratico Campesino, which represents more than 117 rural limited-resource farmers and farming communities in Chihuahua. The SuperMarket Coop (2007) described itself as

> an ambitious collaborative effort of rural, community-based agricultural cooperatives to employ technology in the preservation of their communities, cultures and farming professions; ... an organic, evolving technology-based project, enabling previously excluded farmers and rural businesses access to markets and tools essential to business growth. (¶ 2-3)

The project includes an online retail store and a subscription-based food-of-the-month program and demonstrates an awareness of the marketing and practitioner networking potential of the Internet among the Latino farm owner-operators in the Pacific Northwest. Among Maine farm workers there was interest in using the SuperMarket network to

> learn exactly when goods are ready to produce, how much work there will be, what the growers would pay, whether the growers seeking workers are reliable, whether transportation to the job would be provided, and what medical and educational facilities might be available on the job. That could save them a lot of wasted travel to jobs that don't work out. (US National Telecommunications and Information Administration, 2000, Farmer-to-Farmer Networking section, ¶ 3)

This is another dimension of online job information related to migrant farm work. It reinforces the fact that farm operations across the US face labor shortages during harvest periods and that farm workers value the provision of education opportunities.

In this appendix I outlined some of the heritage influences which contribute to the diversity that exists across the Latino population of the Pacific Northwest. I then outlined the long tradition of agricultural information exchange and shared learning, and more recent entrepreneurial scaffolding through participation in farmers' markets and farmer cooperatives. I identified some of the success stories among the small farm owners of the Yakima Valley and the support they are receiving through non-profit and WSU extension services.